

1985



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SPECIFICATION BOOK

FOREWORD

3161

CW/22

This booklet contains service specifications for the 1985 F-150 — F-350, Ranger, Bronco, Bronco II and E-150 — E-350 vehicles. For quick reference, this booklet is organized by general topics, such as Powertrain, Chassis, Electrical Systems and Body. Each of these general topics is then further subdivided into specific categories. For example, the Chassis topic is subdivided into Brakes, Steering, Suspension and Driveaxles. The index identifies each of the categories and content within each category.

The specifications contained in this booklet were in effect at the time this booklet was approved for printing. Ford Motor Companies reserve the right to discontinue models at any time, or to change specifications or design, without notice and without incurring obligation.

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Vehicle Identification

This section explains the various labels and vehicle identification number codes that identify vehicle components (such as engine), features (such as trim) and miscellaneous information (such as model year and assembly plant). The following charts identify the major driveline components for each vehicle line.

DRIVELINE COMPONENTS

Ranger 4x2 Pickup with Payload Pkg. No. 1 & 2200 lb. Standard Rear Axle

Engine	Transmission	Rapid-Spec Codes	Axle Ratios			
			49 States		California(1)	High Altitude
			3.08	3.45	3.45	NA
2.0L 1V I-4	4-Speed Manual	99C&44X	Std	Opt	—	—
2.3L 1V I-4	Automatic	99A&44G	—	Std	Std	—
Axle Availability & Rapid-Spec Code:						
Standard		2200 Lbs.	X72	X74	X74	—

(1) Engine requires California Emission System, Rapid-Spec Code 422.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

Ranger 4x2 with 2700 lb. or 3200 lb. Rear Axle

Engine & Model Application	Transmission	Rapid-Spec Codes	Axle Ratios										
			49 States				California(1)				High Altitude		
			3.08 (2)	3.45	3.73	4.10	3.08 (2)	3.45	3.73	4.10	3.45	3.73	4.10
2.0L 1V I4 Pickups	4-Speed Manual	99C&44X	—	Std(4)	Opt	—	—	—	—	—	—	—	—
	5-Speed Manual Overdrive	99C&445	—	—	Std	—	—	—	—	—	—	—	—
2.3L 1V I-4 Pickups	4-Speed Manual	99A&44X	—	Std	Opt	—	—	Std	Opt	—	Std	Opt	—
	5-Speed Manual Overdrive	99A&445	—	—	Std	—	—	—	Std	—	—	Std	—
	Automatic	99A&44G	—	Std(4)	Opt	—	—	Std	Opt	—	—	—	—
2.3L 1V I-4 Chassis Cab	4-Speed Manual	99A&44X	—	—	Std	—	—	—	Std	—	—	Std	—
2.8L 2V V-6 Pickups	4-Speed Manual	99S&44X	Std	Opt	Opt	—	Std	Opt	Opt	—	—	Std	—
	5-Speed Manual Overdrive	99S&445	—	Std	Opt	—	—	Std	Opt	—	Opt	Std	—
	Automatic	99S&44G	Std	Opt	—	—	Std	Opt	—	—	Std	—	—
2.8L 2V V-6 Chassis Cab	4-Speed Manual	99S&44X	—	—	Std	—	—	—	Std	—	—	Std	—

Axle Availability & Rapid-Spec Code:

Standard	2700 lbs.	XB2	XB4	XB6	(3)	XB2	XB4	XB6	(3)	XB4	XB6	(3)
Traction-Lok	2700 lbs.	—	XF4	XF6	(3)	—	XF4	XF6	(3)	XF4	XF6	(3)
Standard (5)	3200 lbs.	—	—	(3)	—	—	—	(3)	—	—	(3)	—
Traction-Lok (5)	3200 lbs.	—	—	(3)	—	—	—	(3)	—	—	(3)	—

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) Not available with Traction-Lok axle.

(3) Rapid-Spec Code not available at time of printing.

(4) Late availability with base Payload Package.

(5) Only on Chassis Cab with Payload Package No. 3

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-150 4x2 — Cont'd

Engine & Model Application	Transmission	Rapid-Spec Codes	Axle Ratios						
			49 States			California(1)		High Altitude	
			2.47	3.08	3.55	3.08	3.55	3.08	3.55
5.0L 2V V-8 SuperCab	3-Speed Manual	99F&44C	—	Std	—	—	—	—	—
	Automatic	99F&44G	—	—	Std	—	—	—	—
	4-Speed Manual Overdrive	99F&44B	—	Std	—	—	—	—	—
	Automatic Overdrive	99F&44T	—	—	Std	—	Std	—	Std
5.8L 2V V-8 All Models	4-Speed Manual	99G&44F	—	—	Std(2)	—	—	—	Std(2)
	Automatic	99G&44G	—	—	Std(3)	—	Std(3)	—	Std(3)
5.8L HO 4V V-8 All Models	Automatic	(4)&44G	—	—	Std(3)	—	Std(3)	—	Std(3)
Axle Availability & Rapid-Spec Code:									
Standard		3750 lbs.	X17	X18	X19	X18	X19	X18	X19
Traction-Lok		3750 lbs.	—	XH8	XH9	XH8	XH9	XH8	XH9

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 3.50 Axle Ratio.
- (3) 3.50 Axle Ratio; 5.8L 2V V-8 Automatic Transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and Automatic Transmission.
- (4) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-250 4x2

Engine & Model Application	Transmission	Rapid-Spec Codes	Axle Ratios								
			49 States			California(1)			High Altitude		
			3.54 (2)	3.73	4.10	3.54 (2)	3.73	4.10	3.54 (2)	3.73	4.10
4.9L 1V I-6(3) Pickup	3-Speed Manual	99Y& 44C	Std	—	—	Std	—	—	Std	—	—
	4-Speed Manual	99Y& 44F	Std	—	—	Std	—	—	Std	—	—
	Automatic	99Y& 44G	Std	—	—	Std	—	—	Std	—	—
5.0L 2V V-8 Pickup	4-Speed Manual	99F& 44F	Std	Opt	—	—	—	—	Std	Opt	—
	4-Speed Manual Overdrive	99F& 44B	—	Std	—	—	—	—	—	Std	—
	Automatic Overdrive	99F& 44T	Std	Opt	—	Std	Opt	—	Std	Opt	—
5.0L 2V V-8 Chassis Cab	4-Speed Manual	99F& 44F	—	Std (4)	—	—	—	—	—	Std (4)	—
	Automatic	99F& 44G	—	Std (4)	—	—	Std	—	—	Std (4)	—
5.8L 2V V-8 Pickup	4-Speed Manual	99G& 44F	—	Std (4)	Opt	Std	—	—	—	Std	Opt
	Automatic(5)	99G& 44G	—	Std (4)	Opt	—	Std	Opt	—	Std	Opt
5.8L HO 4V V-8 Pickup	Automatic(5)	(6)& 44G	Std	—	Opt	—	—	—	Std	—	Opt

Axle Availability & Rapid-Spec Code:

Pickup with Payload Pkg. No. 1:										
— Standard 4050 lbs.	X26	—	—	X26	—	—	X26	—	—	—
— Limited-Slip 4050 lbs.	XB6	—	—	XB6	—	—	XB6	—	—	—
All Other F-250 (Under 8500 lbs.) GVWR Models:										
— Standard 5300 lbs.	X23	X24	X22	X23	X24	X22	X23	X24	X22	X22
— Limited-Slip 5300 lbs.	XB3	XB4	XB2	XB3	—	XB2	XB3	XB4	XB2	XB2

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) 3.55 with 4050 lbs. standard or limited-slip rear axle.

(3) Only engine available with Regular Cab Payload Package No. 3.

(4) Not available with limited-slip rear axle.

(5) 5.8L 2V V-8-automatic transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and automatic transmission.

(6) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

RANGER 4x4

Engine	Transmission	Rapid-Spec Codes	Axle Ratios					
			49 States			California(1)		High Altitude
			3.08	3.45	3.73	3.45	3.73	3.73
2.3L 1V I-4	4-Speed Manual	99A&44X	—	—	Std	—	Std	Std
	5-Speed Manual Overdrive	99A&445	—	—	Std	—	Std	Std
2.8L 2V V-6	4-Speed Manual	99S&44X	Std	Opt	Opt	Std	Opt	Std
	5-Speed Manual Overdrive	99S&445	—	—	Std	—	Std	Std
	Automatic	99S&44G	—	Std	Opt	Std	Opt	Std
Axle Availability & Rapid-Spec Code:								
Standard	2700 lbs.		XB2	XB4	XB6	XB4	XB6	XB6
Traction Lok	2700 lbs.		—	XF4	XF6	XF4	XF6	XF6

(1) Engine requires California Emission System, Rapid-Spec Code 422.

Vehicle Identification

BRONCO II

Engine	Transmission	Rapid-Spec Codes	Axle Ratios				
			49 States		California(1)		High Altitude
			3.45	3.73	3.45	3.73	3.73
2.8L 2V V-6	4-Speed Manual	99S&44X	Std	Opt	Std	Opt	Std
	5-Speed Manual Overdrive	99S&445	—	Std	—	Std	Std
	Automatic	99S&44G	Std	Opt	Std	Opt	Std
Axle Availability & Rapid-Spec Code:							
Standard		2500 lbs.	X42	X44	X42	X44	X44
Traction-Lok		2500 lbs.	—	XD4	—	XD4	XD4

(1) Engine requires California Emission System, Rapid-Spec Code 422.

F-150 4x2

Engine & Model Application	Transmission	Rapid-Spec Codes	Axle Ratios						
			49 States			California(1)		High Altitude	
			2.47	3.08	3.55	3.08	3.55	3.08	3.55
4.9L 1V I-6 Regular Cab	3-Speed Manual	99Y&44C	Std	Opt	Opt	Std	—	—	Std
	4-Speed Manual	99Y&44F	—	Std	Opt	Std	—	—	Std
	4-Speed Manual Overdrive	99Y&44B	Std	Opt	Opt	Std	—	—	Std
	Automatic	99Y&44G	—	Std	Opt	Std	Opt	—	Std
	Automatic Overdrive	99Y&44T	—	Std	Opt	Std	Opt	Std	Opt
4.9L 1V I-6 SuperCab	3-Speed Manual	99Y&44C	—	Std	Opt	Std	Opt	—	Std
	4-Speed Manual Overdrive	99Y&44B	—	Std	Opt	Std	Opt	—	Std
	Automatic	99Y&44G	—	Std	Opt	Std	Opt	—	Std
	Automatic Overdrive	99Y&44T	—	—	Std	—	Std	—	Std
5.0L 2V V-8 Regular Cab	3-Speed Manual	99F&44C	—	Std	—	—	—	—	Std
	4-Speed Manual Overdrive	99F&44B	—	Std	—	—	—	—	—
	Automatic	99F&44G	—	—	Std	—	—	—	—
	Automatic Overdrive	99F&44T	—	—	Std	—	Std	—	Std

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-250 HD 4x2 (Over 8500 Lbs. GVWR)

Engine	Transmission	Rapid-Spec Codes	Axle Ratios									
			49 States				California (1)				High Altitude	
			3.07	3.54	3.73	4.10	3.07	3.54	3.73	4.10	3.54	4.10
4.9L 1V I-6	4-Speed Manual	99Y& 44F	—	—	Opt (4)	Std (3)	—	—	Opt	Std	—	Std
	Automatic	99Y& 44G	—	—	Opt (4)	Std (3)	—	—	—	—	—	Std
5.8L 2V V-8	4-Speed Manual	99G& 44F	—	—	Std	Opt (3)	—	—	—	—	—	Std
	Automatic	99G& 44G	—	—	Std	Opt (3)	—	—	—	—	—	Std
6.9L V-8 Diesel(2)	4-Speed Manual	991& 44P	Std	Opt (2)	—	Opt (2)	Std	Opt (2)	—	Opt (2)	Std (2)	Opt (2)
	Automatic(3)	991& 44G	Std	Opt (2)	—	Opt (2)	Std	Opt (2)	—	Opt (2)	Std (2)	Opt (2)
7.5L 4V V-8	4-Speed Manual	99L& 44P	Std	Opt (2)	—	Opt (2)	Std	Opt (2)	—	Opt (2)	Std (2)	Opt (2)
	Automatic(5)	99L& 44G	Std	Opt	—	Opt	Std	Opt	—	Opt	Std	Opt

Axle Availability & Rapid-Spec Code:

Standard	6250 lbs.	X31	X33	X34	X32	X31	X33	X34	X32	X33	X32
Limited-Slip	6250 lbs.	—	XC3	—	XC2	—	XC3	—	XC2	XC3	XC2
Standard	6300 lbs. (2)	—	X33	—	X32	—	X33	—	X32	X33	X32 (3)
Limited-Slip	6300 lbs. (2)	—	XC3	—	XC2	—	XC3	—	XC2	—	XC2

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 6300 lb. full floating rear axle included with manual transmission and either 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine. Also included with 6.9L V-8 diesel and automatic transmission.
- (3) Not available on Chassis Cab models.
- (4) Standard on Chassis Cab models.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-350 4x2

Engine & Model Application	Transmission	Rapid-Spec Codes	Axle Ratios										
			49 States				California(1)				High Altitude		
			3.07 (4)	3.54	3.73	4.10	3.07 (4)	3.54	3.73	4.10	3.54	3.73	4.10
4.9L 1V I-6(5) Chassis Cab	4-Speed Manual	99Y& 44F	—	—	—	Std	—	—	—	—	—	—	Std
	Automatic	99Y& 44G	—	—	—	Std	—	—	—	—	—	—	Std
4.9L 1V I-6 Crew Cab	4-Speed Manual	99Y& 44F	—	—	Opt	Std	—	—	—	—	—	—	Std
5.8L 2V V-8 All Pickups	4-Speed Manual	99G& 44F	—	Std (5)	Std (3)	Opt	—	—	—	—	—	—	Std
	Automatic	99G& 44G	—	Std (5)	Std (3)	Opt	—	—	—	—	—	—	Std
5.8L 2V V-8 Chassis Cab	4-Speed Manual	99G& 44F	—	Std (5)(2)	Std (3)	Opt (6)(2)	—	—	—	—	Std (5)	Std (3)	Opt (6)
	Automatic	99G& 44G	—	Std (5)(2)	Std (3)	Opt (6)(2)	—	—	—	—	Std (5)	Std (3)	Opt (6)
6.9L V-8 Diesel Regular Cab	4-Speed Manual	991& 44P	Std (3)	Opt (2)	—	Opt (6)(2)	Std (3)	Opt (2)	—	Opt (6)(2)	Std (2)	—	Opt (6)(2)
	Automatic	991& 44G	Std (3)	Opt (2)	—	Opt (2)	Std (3)	Opt (2)	—	Opt (2)	Std (2)	—	Opt (2)
7.5L 4V V-8	4-Speed Manual	99L& 44P	Std (3)	Opt (2)	—	Opt (6)(2)	Std (3)	Opt (2)	—	Opt (6)(2)	Std (2)	—	Opt (6)(2)
	Automatic	99L& 44G	Std (3)	Opt	—	Opt	Std (3)	Opt	—	Opt	Std	—	Opt

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-350 4x2

Engine & Model Application	Transmission	Rapid- Spec Codes	Axle Ratios										
			49 States				California(1)				High Altitude		
			3.07	3.54	3.73	4.10	3.07	3.54	3.73	4.10	3.54	3.73	4.10
Axle Availability & Rapid-Spec Code:													
Single-Rear-Wheel Models:													
—Standard	6250 Lbs.	X31	X33	X34	X32	X31	X33	X34	X32	X33	X34	X32	
—Limited-Slip	6250 Lbs.	—	XC3	—	XC2	—	XC3	—	XC2	XC3	—	XC2	
—Standard(7)	6300 Lbs.	—	X33	—	X32	—	X33	—	X32	X33	—	X32	
—Limited-Slip(7)	6300 Lbs.	—	XC3	—	XC2	—	XC3	—	XC2	XC3	—	XC2	
Dual-Rear-Wheel Models:													
—Standard	7400 Lbs.	—	X43	—	X42	—	X43	—	X42	X43	—	X42	
—Limited-Slip	7400 Lbs.	—	X53	—	X52	—	X53	—	X52	X53	—	X52	
—Standard(6)	8200 Lbs.	—	—	—	X62	—	—	—	X62	—	—	X62	

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) Includes 6300 lb. full-floating rear axle with Single Rear Wheel models equipped with manual transmission and either 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine. Also included with 6.9L V-8 diesel engine with automatic transmission and 5.8L Chassis Cab.
- (3) Available only with Single Rear Wheel models.
- (4) Not available with Chassis Cab model
- (5) Available only with Dual Rear Wheel models.
- (6) Only axle available with Dual Rear Wheel Payload Package No. 2.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-150 4x4

Engine	Transmission	Rapid-Spec Codes	Axle Ratios			
			49 States		California(1)	High Altitude
			3.08(2)	3.55	3.55	3.55
4.9L 1V I-6	4-Speed Manual	99Y&44F	Std	Opt	Std	Std
	4-Speed Manual Overdrive	99Y&44B	Std	Opt	Std	Std
	Automatic	99Y&44G	—	Std	Std	Std
5.0L 2V V-8	4-Speed Manual	99F&44F	—	Std	—	Std
	4-Speed Manual Overdrive	99F&44B	—	Std	—	Std
	Automatic	99F&44G	—	Std	Std	Std
5.8L 2V V-8	4-Speed Manual	99G&44F	—	Std	—	Std
	4-Speed Manual Overdrive	99G&44B	—	Std	—	Std
	Automatic(3)	99G&44G	—	Std	Std(2)	Std
5.8L HO 4V V-8	Automatic(3)	(4)&44G	—	Std	Std	Std(2)
Axle Availability & Rapid-Spec Code:						
Standard	3750 Lbs.	X18	X19	X19	X19	X19
Traction-Lok	3750 Lbs.	XH8	XH9	XH9	XH9	XH9

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) Not available with SuperCab model.

(3) 5.8L 2V V-8 automatic transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and automatic transmission.

(4) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-250 4x4

Engine	Transmission	Rapid-Spec Codes	Axle Ratios					
			49 States		California(1)		High Altitude	
			3.55	4.10	3.55	4.10	3.55	4.10
4.9L 1V I-6	4-Speed Manual	99Y&44F	Std	—	Std	—	Std	—
	Automatic	99Y&44G	Std	—	Std	—	Std	—
5.0L 2V V-8	4-Speed Manual	99F&44F	Std	—	—	—	Std	—
	Automatic	99F&44G	Std	—	Std	—	Std	—
5.8L 2V V-8	4-Speed Manual	99G&44F	—	Std	—	—	—	Std
	Automatic(3)	99G&44G	—	Std	—	—	—	Std
5.8L HO 4V V-8	Automatic(3)	(4)&44G	Std(2)	Opt	—	—	Std(2)	Opt

Axle Availability & Rapid-Spec Code:

— Standard	4050 lbs.	X26	—	X26	—	X26	—
— Traction-Lok	4050 lbs.	XB6	—	XB6	—	XB6	—
— Standard	5300 lbs.	—	X22	—	X22	—	X22
— Limited-Slip	5300 lbs.	—	XB2	—	XB2	—	XB2

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) 3.54 axle ratio.

(3) 5.8L 2V V-8/automatic transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and automatic transmission.

(4) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-250 HD (Over 8500 Lbs. GVWR) 4x4

Engine	Transmission	Rapid-Spec Codes	Axle Ratios					
			49 States		California(1)		High Altitude	
			3.54	4.10	3.54	4.10	3.54	4.10
5.8L 2V V-8	4-Speed Manual	99G&44F	Std	Opt	—	—	—	Std
	Automatic	99G&44G	Std	Opt	—	—	—	Std
6.9L Diesel V-8(2)	4-Speed Manual(3)	99I&44P	Std	Opt	Std	Opt	Std	Opt
	Automatic(3)	99I&44G	Std	Opt	Std	Opt	Std	Opt
7.5L 4V V-8(4)	4-Speed Manual(3)	99L&44P	Std	Opt	Std	Opt	Std	Opt
	Automatic	99L&44G	Std	Opt	Std	Opt	Std	Opt
Axle Availability & Rapid-Spec Code:								
Standard		6250 Lbs.	X33	X32	X33	X32	X33	X32
Limited-Slip		6250 Lbs.	XC3	XC2	XC3	XC2	—	XC2

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 4.10 axle ratio recommended for optimum heater performance in severe cold weather and for high altitude, trailer towing and other performance oriented applications.
- (3) Models with 6.9L V-8 diesel, or with manual transmission and 7.5L 4V V-8 gasoline engine, have a 6300 lb. full-floating rear axle.
- (4) Recommended for models that will have second unit bodies with large frontal areas.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-350 4x4

Engine	Transmission	Rapid-Spec Codes	Axle Ratios					
			49 States		California(1)		High Altitude	
			3.54	4.10	3.54	4.10	3.54	4.10
5.8L 2V V-8	4-Speed Manual	99G&44F	—	Std	—	—	—	Std
	Automatic	99G&44G	—	Std	—	—	—	Std
6.9L Diesel V-8(2)	4-Speed Manual(3)	99I&44P	Std	Opt	Std	Opt	Std	Std
	Automatic	99I&44G	Std	Opt	Std	Opt	Std	Std
7.5L 4V V-8(4)	4-Speed Manual(3)	99L&44P	Std	Opt	Std	Opt	Std	Std
	Automatic	99L&44G	Std	Opt	Std	Opt	Std	Std

Axle Availability & Rapid-Spec Code:

Standard	6250 Lbs.	X33	X32	X33	X32	X33	X32
Limited-Slip	6250 Lbs.	XC3	XC2	XC3	XC2	—	XC2
Standard(3)	6300 Lbs.	X33	X32	X33	X32	X33	X32
Limited-Slip(3)	6300 Lbs.	XC3	XC2	XC3	XC2	—	XC2

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) Not available with Crew Cab models; 4.10 axle ratio recommended for optimum heater performance in severe cold weather, and for high altitude, trailer towing or other performance-oriented applications with other models.
- (3) Models with 6.9L V-8 diesel engine, or with manual transmission and 7.5L 4V V-8 gasoline engine, have a 6300 lb. full-floating rear axle.
- (4) Recommended for models that will have second unit bodies with large frontal areas.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

Bronco

Engine	Transmission	Rapid-Spec Codes	Axle Ratios			
			49 States		California(1)	High Altitude
			3.08	3.55	3.55	3.55
4.9L 1V I-6	4-Speed Manual	99Y&44F	Std	Opt	Std	Std
	4-Speed Manual Overdrive	99Y&44B	Std	Opt	Std	Std
	Automatic	99Y&44G	—	Std	Std	Std
5.0L 2V V-8	4-Speed Manual	99F&44F	—	Std	—	Std
	4-Speed Manual Overdrive	99F&44B	—	Std	—	Std
	Automatic	99F&44G	—	Std	Std	Std
5.8L 2V V-8	4-Speed Manual	99G&44F	—	Std	—	Std
	4-Speed Manual Overdrive	99G&44B	—	Std	—	Std
	Automatic(2)	99G&44G	—	Std	—	Std
5.8L HO 4V V-8	Automatic(2)	(3)&44G	—	Std	—	Std

Axle Availability & Rapid-Spec Code:

Standard	3750 lbs.	X18	X19	X19	X19
Traction-Lok	3750 lbs.	XB8	XB9	XB9	XB9

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) 5.8L 2V V-8/automatic transmission combination will be replaced later in the model year by 5.8L HO 4V V-8 and automatic transmission.

(3) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

E-150 Van/SuperVan & Club Wagon

Engine	Transmission	Rapid-Spec Codes	Axle Ratios				
			49 States		California(1)		High Altitude
			3.00	3.50	3.00	3.50	3.50
4.9L 1V I-6	3-Speed Manual(2)	99Y&44C	Std	Opt	—	Std	Std
	4-Speed Manual Overdrive	99Y&44B	Std	Opt	Opt(2)	Std	Std
	Automatic(2)		Std	Opt	—	Std	—
	Automatic Overdrive	99Y&44T	—	—	—	Std	—
5.0L 2V V-8	Automatic Overdrive	99F&44T	—	Std	—	Std	Std
5.8L 2V V-8 (4)	Automatic	99G&44G	—	Std	—	Std(2)(3)	Std
5.8L HO 4V V-8(4)	Automatic	(5)&44T	—	Std	—	Std(2)(3)	Std
Axle Availability & Rapid-Spec Code:							
Standard		3750 lbs.	X14	X16	—	X16	X16
Traction-Lok		3750 lbs.	XH4	XH6	XH4	XH6	XH6

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) Not available on Club Wagon.

(3) Not available with GVWR over 6000 lbs.

(4) 5.8L 2V V-8 will be replaced later in the model year by 5.8L HO 4V V-8.

(5) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

E-250 Van/SuperVan

Engine	Transmission	Rapid-Spec Codes	Axle Ratios							
			49 States			California(1)		High Altitude		
			3.55/ 3.54(2)	3.73(3)	4.10(3)	3.55/ 3.54(2)	4.10(3)	3.55/ 3.54(2)	3.73(3)	4.10(3)
4.9L 1V I-6	3-Speed Manual	99Y& 44C	Std	—	—	Std	—	Std	—	—
	Automatic(4)	99Y& 44G	Std	—	—	Std	—	Std	—	—
	Automatic Overdrive	99Y& 44T	Std(3)	—	—	Std(3)	—	Std(3)	—	—
5.0L 2V V-8	Automatic Overdrive	99F& 44T	Std	—	Opt	Std	Opt	Std	—	Opt
5.8L 2V V-8(5)	Automatic	99G& 44G	Std	Opt	—	Std	—	Std	Opt	—
5.8L HO 4V V-8(5)	Automatic	(6)& 44G	Std	—	—	—	—	Std	—	—

Axle Availability & Rapid-Spec Code:

Regular Van with Payload Pkg. No. 1

— Standard	4050 lbs.	X26	—	X22	X26	X22	X26	—	X22
— Traction-Lok	4050 lbs.	XB6	—	XB2	XB6	XB2	XB6	—	XB2

Regular Van with Payload Pkg. No. 2 & SuperVan

— Standard	5300 lbs.	X23	(6)	X22	X23	X22	X23	(6)	X22
— Traction-Lok	5300 lbs.	XB3	(6)	XB2	XB3	XB2	XB3	(6)	XB2

- (1) Engine requires California Emission System, Rapid-Spec Code 422.
- (2) 3.55 axle ratio for Regular Van with 4050 lb. rear axle; 3.54 axle ratio for Regular Van with 5300 lb. rear axle and all SuperVans.
- (3) Available only with 3.54 (5300 lbs.) rear axle.
- (4) Late availability.
- (5) 5.8L 2V V-8 will be replaced later in the model year by 5.8L HO 4V V-8.
- (6) Rapid-Spec Code not available at time of printing.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

E-250 & E-350 Club Wagon/Super Wagon

Engine & Model Applications	Transmission	Rapid-Spec Codes	Axle Ratios										
			49 States				California(1)			High Altitude			
			3.07	3.54	3.73	4.10	3.07	3.54	4.10	3.07	3.54	3.73	4.10
4.9L 1V I-6 E-250	Automatic	99Y& 44G	—	Std	—	Opt	—	—	—	—	Std	—	Opt
4.9L 1V I-6 E-350	Automatic	99Y& 44G	—	—	—	Std	—	—	—	—	—	—	Std
5.8L 2V V-8 E-250	Automatic	99G& 44G	—	Std	—	Opt	—	—	—	—	Std	—	Opt
5.8L 2V V-8 E-350	Automatic	99G& 44G	—	—	Std	Opt	—	—	—	—	—	Std	Opt
6.9L Diesel V-8	Automatic	99I& 44G	—	Std	—	Opt	—	Std	Opt	—	Std	—	Opt
7.5L 4V V-8	Automatic	99L& 44G	Std	Opt	—	Opt	Std	Opt	Opt	Std	Opt	—	Opt
Axle Availability & Rapid-Spec Code:													
Standard	6340 lbs.	X31	X33	X34	X32	X31	X33	X32	X31	X33	X34	X32	
Limited-Slip	6340 lbs.	—	XC3	—	XC2	—	XC3	XC2	—	XC3	—	XC2	

(1) Engine requires California Emission System, Rapid-Spec Code 422.

Vehicle Identification

DRIVELINE COMPONENTS — CONT'D

F-350 Van/SuperVan & Parcel Delivery Van

Engine	Trans- mission	Rapid- Spec Codes	Axle Ratios										
			49 States				California(1)			High Altitude			
			3.07	3.54	3.73	4.10	3.07	3.54	4.10	3.07	3.54	3.73	4.10
4.9L 1V I-6	3-Speed Manual(2)	99Y& 44C	—	—	—	Std	—	—	Std	—	—	—	Std
	Automatic	99Y& 44G	—	—	—	Std	—	—	—	—	—	—	Std
5.8L 2V V-8	Automatic	99G& 44G	—	—	Std (3)	Opt (4)	—	—	—	—	—	Std (3)	Opt (4)
6.9L Diesel V-8(5)	Automatic	991& 44G	—	Std	—	Opt (4)	—	Std	Opt (4)	—	Std	—	Opt (4)
7.5L 4V V-8	Automatic	99L& 44G	Std (2)	Opt (4)	—	Opt	Std (2)	Opt (4)	Opt	Std (2)	Opt (4)	—	Opt

Axle Availability & Rapid-Spec Code:

Single Rear Wheels:													
—Standard	6340 Lbs.		X31	X33	X34	X32	X31	X33	X32	X31	X33	X34	X32
—Limited-Slip	6340 Lbs.		—	XC3	—	XC2	—	XC3	XC2	—	XC3	—	XC2
Dual Rear Wheels:													
—Standard	7400 Lbs.		—	X53	—	X52	—	X53	X52	—	X53	—	X52
—Limited-Slip	7400 Lbs.		—	XE3	XE4	XE2	—	XE3	XE2	—	XE3	XE4	XE2

(1) Engine requires California Emission System, Rapid-Spec Code 422.

(2) Not available with Dual Rear Wheels.

(3) Available (optionally) only with limited-slip rear axle in Dual Rear Wheel Models.

(4) Standard with Dual Rear Wheels.

Vehicle Identification

SAFETY COMPLIANCE CERTIFICATION LABELS

COMPLETE VEHICLES

The Safety Compliance Certification Label (examples below and on next page) is attached to the driver's door lock pillar.

(UNITED STATES)

MFD. BY FORD MOTOR CO. IN U.S.A.						
Date: 8/82		GVWR: 7650 Lb/3470 Kg				
Front GAWR: 3050 Lb		Rear GAWR: 5300 Lb				
1383 Kg		With	2404 Kg		With	
F78-15B		Tires	F78-15B		Tires	
15x5.5K		Rims	15x5.5K		Rims	
At 32 PSI Cold		At 32 PSI Cold				
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE						
Vehicle Identification No. 1FTBF25G5 FLA00000						
Type Truck						
EXTERIOR PAINT COLORS						DSO
WB	Type GVW	Body	Trans	Axle	Tape	Spring

(CANADA)

MFD. BY FORD MOTOR CO. OF CANADA LTD.						
Date:		GVWR:				
Front GAWR:		Rear GAWR:				
		With			With	
		Tires			Tires	
		Rims			Rims	
At	PSI Cold			At	PSI Cold	
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE						
Vehicle Identification No.						
Type Utilize Same Type Data as U.S.A.						
EXTERIOR PAINT COLORS						DSO
WB	Type GVW	Body	Trans	Axle		

Vehicle Identification

SAFETY COMPLIANCE CERTIFICATION LABELS — CONT'D

COMPLETE VEHICLES — CONT'D

(QUEBEC)

FABR. AUX E-U PAR LA FORD MOTOR CO.							
Date:				PNBV:			
PNBE Avant:				PNBE Arriere:			
				Avec Pneus Jantes			
A Lb/PO ² A Froid				A Lb/PO ² A Froid			
CE VEHICULE EST CONFORME A TOUTES LES NORMES FEDERALES DE SECURITE DES V.A. EN VIGUEUR A LA DATE DE FABR. INIQUEE CI-DESSUS.							
N D'Ident. Du VEH.							
Type							
COULEUR						4 Comm Spec	
Empatt	Type/PSV	Carr	Transm	Pont	Bande	Ressort	

FOR VEHICLES MFD. IN U.S.A. FOR QUEBEC, CANADA

(QUEBEC)

FABR. PAR FORD DU CANADA LIMITEE							
Date:				PNBV:			
PNBE Avant:				PNBE Arriere:			
				Avec Pneus Jantes			
A LB/PO ² A FROID				A LB/PO ² A FROID			
CE VEHICULE EST CONFORME A TOUTES LES NORMES FEDERALES DE SECURITE DES V.A. EN VIGUEUR A LA DATE DE FABR. INIQUEE CI-DESSUS.							
N D'Ident. Du VEH.							
Type							
COULEUR						4 Comm Spec	
Empatt	Type/PSV	Carr	Transm	Pont	Bande	Ressort	
MADE IN CANADA							

FOR VEHICLES MFD. IN CANADA FOR QUEBEC, CANADA



DECAL APPLIED TO ALL CANADIAN BUILT UNITS AND
ALL U.S.A. BUILT UNITS SOLD IN CANADA

Vehicle Identification

SAFETY COMPLIANCE CERTIFICATION LABEL — CONT'D

INCOMPLETE VEHICLES

The incomplete vehicle rating decal is installed on the driver's door lock pillar in place of the safety compliance certification label.

VEHICLE RATING DECAL

INCOMPLETE VEHICLE MANUFACTURED BY					
GVWR: 3020 LB/1369 KG					
VEHICLE IDENTIFICATION NUMBER		1FTB25G5 FLA00000			
EXTERIOR PAINT COLORS		1C		48 DSO	
WB	TYPE-GVW	BODY	TRANS	AXLE	
133	F270	AB4	G	38 1985	

TYPE — GROSS VEHICLE WEIGHT (GVW) CODES
BRONCO, E-150 — E-350, F-150 — F-350

1 MFD. BY FORD MOTOR CO. IN U.S.A.

2 DATE:

3 FRONT GAWR:

4

5 AT PSI COLD

6 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

7 GVWR:

8 REAR GAWR:

9 WITH TIRES RIMS

10 WITH TIRES RIMS

11 AT PSI COLD

12

13 Vehicle Identification No.

14 Type

15 2K 9A

16 EXTERIOR PAINT COLORS

17 WB

18 Type GVW

19 Body

20 Trans

21 Axle

22 DSO

23

24

25 133

26 F252

27 BA4

28 F

29 342

Vehicle Identification

- | | |
|---|---|
| (1) Name and Location of Manufacturer | (f) Model Year |
| (2) Date of Manufacture | (g) Assembly Plant Code |
| (3) Front Gross Axle Weight Ratings in Pounds (LB) and Kilograms (KG) | (h) Sequential Serial Number |
| (4) Front Tire Size | (13) Type Vehicle |
| (5) Rim Size | (14) Exterior Paint Codes (two sets of figures designates a two-tone) |
| (6) Front Tire Cold PSI | (15) Wheelbase in Inches |
| (7) Gross Vehicle Weight Rating in Pounds (LB) and Kilograms (KG) | (16) Model Code and GVW |
| (8) Rear Gross Axle Weight Rating in Pounds (LB) and Kilograms (KG) | (17) Interior Trim, Seat and Body/Cab Type |
| (9) Rear Tire Size | (18) Transmission Code |
| (10) Rim Size | (19) Rear Axle Code |
| (11) Rear Tire Cold PSI | (20) Front Axle Code if so Equipped |
| (12) Vehicle Identification Number — (VIN Characters) | (21) District/Special Order Codes |
| (a) World Manufacturer Identifier | (22) Suspension Identification Codes |
| (b) Brake Type and Gross Vehicle Weight Rating (GVWR) Class | (a) Aux./Opt. Usage Code (Front) |
| (c) Model or Line, Series Chassis Cab or Body Type | (b) Front Spring Code |
| (d) Engine Type | (c) Aux./Opt. Usage Code (Rear) |
| (e) Check Digit | (d) Rear Spring Code |
| | (23) Front Axle Accessory Reserve Capacity in Pounds |
| | (24) Total Accessory Reserve Capacity in Pounds. |

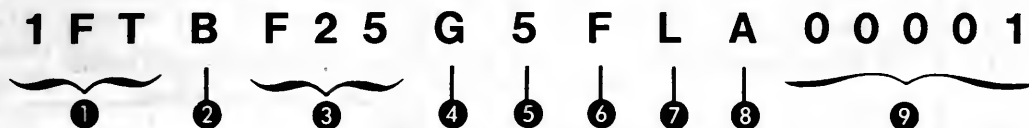
Vehicle Identification

VEHICLE IDENTIFICATION NUMBER (VIN)

The vehicle identification number appears both on the Safety Compliance Certification Label and on a metal tab fastened to the instrument panel close to the windshield on the driver's side. The tab is visible from outside the vehicle. The following pages detail the information contained in the seventeen alphanumeric positions of the VIN.

NOTE: THE FOLLOWING CHARTS ARE FOR ALL VEHICLES, UNLESS OTHERWISE IDENTIFIED.

SAMPLE VIN NUMBER



- | | |
|---|---|
| ① Position 1, 2, and 3 — Manufacturer, Make and Type (World Manufacturer Identifier) | ⑤ Position 9 — Check Digit |
| ② Position 4 — Brakes/GVWR Class for Ford-completed Trucks and MPV's. For Buses and Incomplete Vehicles, Brake System (only). | ⑥ Position 10 — Model Year (Ford-completed vehicles) |
| ③ Position 5, 6, and 7 — Model or Line, Series, Chassis, Cab or Body Type | ⑦ Position 11 — Assembly Plant |
| ④ Position 8 — Engine Type | ⑧ Position 12 — Constant "A" until sequence number of 99,999 is reached, then changes to a constant "B" and so on |
| | ⑨ Position 13 through 17 — Sequence number — begins at 00001 |

Vehicle Identification

VEHICLE IDENTIFICATION NUMBER (VIN) CODES

World Manufacturer Identifier (VIN Positions 1, 2 and 3)

1 F T B F 2 5 G 5 F L A 0 0 0 0 1

VIN Code	Manufacturer	Make	Type
1 F M	Ford Motor Company, USA	Ford	Multipurpose Passenger Vehicle (MPV)
1 F T	Ford Motor Company, USA	Ford	Truck (Complete Vehicle)
1 F D	Ford Motor Company, USA	Ford	Incomplete Vehicle (IV)
1 F C	Ford Motor Company, USA	Ford	Basic Stripped Chassis
1 F B	Ford Motor Company, USA	Ford	Bus
1 F F	Ford Motor Company, USA	Ford	Motor Vehicle Equipment without Engine/Powertrain (Glider)
2 F M	Ford Motor Company of Canada, Ltd.	Ford	MPV
2 F T	Ford Motor Company of Canada, Ltd.	Ford	Truck (Complete Vehicle)
2 F D	Ford Motor Company of Canada, Ltd.	Ford	Incomplete Vehicle
2 F C	Ford Motor Company of Canada, Ltd.	Ford	Basic Stripped Chassis
2 F B	Ford Motor Company of Canada, Ltd.	Ford	Bus

Brakes/GVWR Class (VIN Position 4)

1 F T **B** F 2 5 G 5 F L A 0 0 0 0 1

GVWR Class	VIN Code
Hydraulic Brake System and	
Class A: Not greater than 3,000 pounds	A
Class B: 3,001-4,000 pounds	B
Class C: 4,001-5,000 pounds	C
Class D: 5,001-6,000 pounds	D
Class E: 6,001-7,000 pounds	E
Class F: 7,001-8,000 pounds	F
Class G: 8,001-8,500 pounds	G
Class H: 8,501-9,000 pounds	H
Class I: 9,001-10,000 pounds	I
Class J: 10,001-11,000 pounds	J
Hydraulic Brake System and	
Class 3: 10,001-14,000 pounds	K
Class 4: 14,001-16,000 pounds	L
Class 5: 16,001-19,500 pounds	M

Vehicle Identification

Model or Line, Series, Chassis, Cab Type
(VIN Positions 5, 6 and 7)

1FTB

R10

C5FUA00001

VIN Code	Line	Series	Chassis Type	Cab or Body Type	Vehicle Type
R10	Ranger	Standard	4x2	Regular Cab Pickup	Truck or IV
R11	Ranger	Standard	4x4	Regular Cab Pickup	Truck or IV
R12	Ranger	Standard	4x2	Chassis Cab	IV
U14	Bronco II	Standard	4x4	Bronco II	MPV

NOTE: One of the following optional exterior nameplates (indicating higher trim levels) may also be affixed to the vehicle in addition to the Ranger nameplate:

- XL
- XLT
- XLS

VIN Code		Line	Series	Chassis Type	Cab or Body Type	Vehicle Type (1)
Club Wagon	Super Wagon					
E11	—	Club Wagon	E150	4x2	Club Wagon	MPV
E21	S21	Club Wagon	E250	4x2	Club Wagon/Super Wagon	MPV or Bus (a)
—	S31	Club Wagon	E350	4x2	Super Wagon	MPV or Bus (a)

Memo: One of the following optional exterior nameplates (indicating trim levels) may also be affixed to the vehicle in addition to the Club Wagon nameplate:

- XL
- XLT
- (a) Excludes School Bus

Vehicle Identification

Model or Line, Series, Chassis, Cab Type — Cont'd (Vin Positions 5, 6 AND 7)

VIN Code		Line	Series	Chassis Type	Cab or Body Type	Vehicle Type (1)
Club Wagon	Super Wagon					
E14	S14	Econoline	E150	4x2	Regular Van/Super Van, Cargo Van	Truck or IV
E15	S15	Econoline	E150	4x2	Regular Van/Super Van, Window Van	Truck or IV
E16	—	Econoline	E150	4x2	Regular Van/Display Van	Truck or IV
E24	S24	Econoline	E250	4x2	Regular Van/Super Van, Cargo Van	Truck or IV
E25	S25	Econoline	E250	4x2	Regular Van/Super Van, Window Van	Truck or IV
E26	—	Econoline	E250	4x2	Regular Van/Display Van	Truck or IV
E34	S34	Econoline	E350	4x2	Regular Van/Super Van, Cargo Van	Truck or IV
E35	S35	Econoline	E350	4x2	Regular Van/Super Van, Window Van	Truck or IV
E36	—	Econoline	E350	4x2	Regular Van/Display Van	Truck or IV
Other						
E37	—	Econoline	E350	4x2	Commercial Cutaway	IV
E39	—	Econoline	E350	4x2	Commercial Basic (Stripped) Chassis	IV
E30	—	Econoline	E350	4x2	RV Cutaway	IV

(1) "MPV" means Multi-Purpose Vehicle. "IV" means Incomplete Vehicle "Truck" means Complete Vehicle.

Memo: For all Econoline except Stripped Chassis, the optional exterior nameplate "XL" (indicating different trim level) may also be affixed to the vehicle in addition to the Econoline nameplate.

Note: All Commercial Basic (Stripped) Chassis (CBSC) incomplete vehicles are designated by an "IFC" or "ZFC" World Manufacturer Identifier (WMI) Code — Special Order (DSO) model CBSC's and Regular Production Option (RPO) model CBSC's are coded with an "E39" Body Type code.

Vehicle Identification

Model or Line, Series, Chassis, Cab or Body Type
(VIN Positions 5, 6 and 7)

1FTB **F25** G5FLA00001

VIN Code	Line	Series	Chassis Type	Cab or Body Type	Vehicle Type (1)
U15	Bronco II	U150	4x4	Bronco II	MPV

Memo: One of the following optional exterior nameplates (indicating higher trim levels) may also be affixed to the vehicle in addition to the Bronco nameplate:

- XLT • XLS

Regular Cab	Super Cab or Crew Cab					
F14	X14	F-Series	F150	4x4	Regular Cab/Super Cab, Pickup	Truck or IV
F15	X15	F-Series	F150	4x2	Regular Cab/Super Cab, Pickup	Truck or IV
F25	X25	F-Series	F250	4x2	Regular Cab/Super Cab, Pickup	Truck or IV
F26	X26	F-Series	F250	4x4	Regular Cab/Super Cab, Pickup	Truck or IV
F35	W35	F-Series	F350	4x2	Regular Cab/Crew Cab, Pickup (b)	Truck or IV
F37	—	F-Series	F350	4x2	Regular Cab (Chassis Cab)	IV
F36	W36	F-Series	F350	4x4	Regular Cab/Crew Cab, Pickup (b)	Truck or IV
F38	—	F-Series	F350	4x4	Regular Cab (Chassis Cab)	IV

(1) "MPV" means Multi-Purpose Passenger Vehicle. "IV" means Incomplete Vehicle.

(b) F-350 Crew Cab Pickup is not available as in IV.

Memo: One of the following optional exterior nameplates (indicating trim levels) may also be affixed to the vehicle in addition to the F-Series nameplates:

- XL • XLT Lariat • Explorer (excluding Crew Cab)

Note: Stripped Chassis and other Special Order (DSO) units will be coded with the appropriate series VIN codes listed above.

Vehicle Identification

Engine Type, Displacement, Cylinders, Fuel Type, and Manufacturer
(Vin Position 8)

1FTBF25

G

5FLA00001

VIN Code	Displacement		Cylinders	Fuel	Manufacturer
	Liter	CID			
K	2.0	122	I-4	Gasoline	Ford
Z	2.3	140	I-4	Gasoline	Ford
S	2.8	173	V-6	Gasoline	Ford
3	3.8	232	V-6	Gasoline	Ford
Y	4.9	300	I-6	Gasoline	Ford
F	5.0-2V	302	V-8	Gasoline	Ford
N	5.8-4V	351	V-8	Gasoline	Ford
G	5.8-2V	351	V-8	Gasoline	Ford
H	5.0-4V	302	V-8	Gasoline	Ford
I	6.9D	420	V-8	Diesel	Intl. Harvester
L	7.5	460	V-8	Gasoline	Ford

Delete Engine

0 (Zero) DSO Glider-Delete Engine on motor vehicle equipment only.

Vehicle Identification

**Check Digit for All Vehicles
(VIN Position 9)**

1FTBF25G **5** FLA00001

ZERO THROUGH NINE (0-9) OR X

CY2381-1B

**Assembly Plant
(VIN Position 11)**

1FTBF25G5F **L** A00001

VIN Code	Assembly Plant
C	Ontario Truck
H	Lorain
K	Kansas City
L	Michigan Truck
N	Norfolk
P	Twin Cities
Z	St. Louis

CY2383-1B

**Vehicle Model Year for All Vehicles
(VIN Position 10)**

1FTBF25G5 **F** LA00001

VIN Code	Year
C.....	1982
D.....	1983
E.....	1984
F.....	1985
G.....	1986
H.....	1987
J.....	1988
K.....	1989
L.....	1990

**Production Sequence Number
(VIN Positions 12 Through 17)**

1FTBF25G5FL **A00001**

SEQUENCE NUMBER
A 00001 — A 99,999
B 00001 — B 99,999
and so on.

Vehicle Identification

BUILD DATE STAMP LOCATIONS

The vehicle build date stamp is located as follows: On Bronco and Light Trucks (F-150 through F-350) the vehicle build date is stamped on the front surface of the radiator support on the passenger's side of the vehicle. On Econoline vehicles (E-150 through E-350), the build date is stamped on top of the radiator support. Following is a sample of the four digit number that indicates the month and day of build.

- Actual Date of Build
- Date Stamp on Vehicle
- January 24 0124
- October 21 1021

Yellow ink is used for the date stamp. When the marking surface is painted the body color, the date stamp will be marked in red ink. Units from the Ontario Truck Plant (Code C) will be marked with silver ink.

Exterior Paint Color Codes

DATE:
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

2K 9A

DSO

EXTERIOR PAINT COLORS

WB	Type GVW	Body	Trans	Axle
133	F252	BA4	F	342

Note — Two Sets of Codes Indicates Two-Tone Paint

Ranger

Code	Color	Code	Color
1C	Black	61	Yellow
1G	Silver Metallic	8D	Bittersweet Glow
1P	Medium Grey Metallic	9A	White
2K	Candyapple Red	9P	Desert Tan
3L	Midnight Blue Metallic	9Q	Light Desert Tan
3P	Medium Blue Metallic	Glamour Colors	
32	Bright Blue	2G	Bright Bittersweet
4J	Dark Spruce Metallic	8G	Bittersweet Glow

Vehicle Identification

Exterior Paint Color Codes

Bronco, E-150 — E-250 — E-350, F-150 — F-250 — F-350

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

53 9Y

EXTERIOR PAINT COLORS

DSO

WB	Type GVW	Body	Trans	Axle	Tape	Spring
133	F252	BA4	F	342	B	2D29

Note — Two Sets of Codes Indicate Two-Tone Paint

Code	Color	Code	Color
E-150 — E-250 — E-350		F-150 — F-250 — F-350 — Cont'd	
1C	Black	61	Yellow
2C	Midnight Canyon Red Metallic	9C	Brite Copper Metallic
3F	Light Blue	9D	White
3L	Midnight Blue Metallic	9H	Light Desert Tan
5U	Walnut Metallic	9V	Light Charcoal Metallic
51	Medium Dark Fire Red	9Y	Medium Walnut Metallic
53	Medium Desert Tan	Bronco II	
8N	Dark Cordovan Metallic	1C	Black
8Q	Light Desert Tan	3L	Midnight Blue Metallic
9C	Brite Copper Metallic	3P	Brite Blue Metallic
9D	White	51	Medium Dark Fire Red
9H	Medium Copper Metallic	53	Medium Desert Tan
9V	Light Charcoal Metallic	61	Medium Yellow
9Y	Medium Walnut Metallic	9C	Brite Copper Metallic
F-150 — F-250 — F-350		9D	White
1C	Black	9V	Light Charcoal Metallic
2E	Light Canyon Red	9Y	Walnut Metallic
3F	Light Blue	Bronco II Roof Colors	
3L	Medium Midnight Blue Metallic	A	Black
3P	Brite Blue Metallic	H	Medium Desert Tan
51	Medium Dark Fire Red	W	White
53	Medium Desert Tan		

Vehicle Identification

Type — Gross Vehicle Weight (GVW) Codes

Bronco, E-150 — E-350, F-150 — F-350

MFD. BY FORD MOTOR CO. IN U.S.A.							
DATE:				GVWR:			
FRONT GAWR:				REAR GAWR:			
		WITH TIRES RIMS				WITH TIRES RIMS	
AT	PSI COLD			AT	PSI COLD		
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE							
Vehicle Identification No.							
Type							
4J 9W							
EXTERIOR PAINT COLORS						DSO	
WB	Type GVW	Body	Trans	Axle	Tape	Spring	
133	R11L	CH2	T	822	B	C22D	

R11	L
-----	---

Series	Series Code	GVWR Code	GVWR (lb.)
Ranger			
Ranger 4x2	R-10	0	3800
	R-10	1	3820
	R-10	2	4290
	R-10	3	4280
	R-10	4	4400
	R-10	5	4400
	R-10	V	4020
	R-10	W	4080
	R-10	X	4460
	R-10	Y	4500
	R-12	B	4260
	R-12	C	4440
	R-12	D	4400
Ranger 4x4	R-11	J	4040
	R-11	K	4060
	R-11	L	4440
	R-11	M	4500
	R-11	N	4240
	R-11	R	4300
	R-11	P	4460
	R-11	S	4500
Bronco II			
	U14	0	5350
	U14	1	5450
	U14	3	6050
	U14	4	6300

Vehicle Identification

GROSS VEHICLE WEIGHT (GVW) CODES — CONT'D

Series	Series Code	GVWR Code	GVWR (lb.)	Wheelbase (in.)
F-150 — F-250 — F-350				
F-150 (4x2)	F15, F17	1	4800	117
		2	4900	133
	F15, F17	3	5250	117
	F15, F17	4	5450	133
	F15, F17	5	6100	133
	X15	1	6050	139
	X15	2	6250	155
F-150 (4x4)	F14, F18	1	6100	117
	F14, F18	2	6250	133
	X14	1	6450	155
F-250 (4x2) Light Duty	F25	1	6300	133
	F27	1	6500	133
	F25, F27	2	7300	133
	F25	3	7800	133
F-250 (4x2) Heavy-Duty	F25, F27	7	8600	133
	F27	8	8600	137
	F27	9	9000	161
	X25	9	8800	155
F-250 (4x4)	F26	1	6600	133
	F26, F28	8	8600	133
	X26	1	7600	155
F-350 (4x2)	F35	1	8700	133
	F35	2	10,000	133
	F37	6	8900	137
	F37	8	10,000	137, 161
	F37	9	11,000	137, 161
	F37	5	11,500	137, 161
	W35	1	8700	168
	W35	2	9200	168
F-350 (4x4)	F36	1	9000	133
	F38	1	9000	133
	W36	1	9300	168
			11,500	
E-150 — E-350				
E-150 Wagon	E11	0	6000	124
	E11	1	6200	124
	E11	2	6000	138
	E11	3	6200	138
	E11	4	6600	138
	E11	5	6050	124
	E11	6	6200	124
	E11	9	6600	124
	E11	B	6100	138
	E11	C	6300	138
	E11	D	6600	138

Vehicle Identification

GROSS VEHICLE WEIGHT (GVW) CODES — CONT'D

Series	Series Code	GVWR Code	GVWR (lb.)	Wheelbase (in.)
Bronco II, E-150 — E-350, F-150 — F-350				
E-250 Wagon	E21	P	8550	138
	E21	S	8800	138
E-250 Super Wagon	S21	1	8900	138
	S21	2	9300	138
	S21	6	8700	138
	S21	7	9000	138
	S21	B	8700	138
	S21	C	9000	138
	S21	G	9000	138
	S21	H	9300	138
E-350 Super Wagon	S31	0	8900	138
	S31	1	9300	138
	S31	2	8700	138
	S31	3	9000	138
	S31	4	8700	138
	S31	5	9100	138
	S31	6	9000	138
	S31	7	9200	138
	S31	B	9000	138
	S31	C	9400	138
E-150 Van	E14-E15-E16	1	5250	124
	E14-E15-E16	2	5950	124
	E14-E15-E16	3	6350	124
	E14-E15-E16	1	5250	138
	E14-E15-E16	2	5900	138
	E14-E15-E16	3	6300	138
E-150 Super Van	S14-S15-S16	1	6050	138
E-250 Van	E24-E25-E26	1	6750	138
	E24-E25-E26	2	7500	138
E-250 Super Van	S24-S25-S26	1	7900	138
E-350 Van	E34-E35-E36	1	8750	138
	E34-E35-E36	2	9500	138
E-350 Super Van	S34-S35-S36	1	9100	138

Vehicle Identification

GROSS VEHICLE WEIGHT (GVW) CODES — CONT'D

E-350 RV Cutaway (Less PDV)

Series Code	GVWR Code	GVWR (lb.)	Wheelbase (in.)
E30	1	9750 Single Rear	138
E30	2	10250 Dual Rear	138
E30	2	10250 Dual Rear	158
E30	3	11000 Dual Rear	158
E30	3	11000 Dual Rear	176

E-350 Commercial Cutaway (Less PDV)

E37	1	8950 Single Rear	138
E37	2	9800 Dual Rear	138
E37	3	10000 Dual Rear	138
E37	4	9700 Dual Rear	158

E-350 Parcel Delivery Cutaways

E38	1	8750 Single Rear	138
E38	2	9700 Dual Rear	138
E38	3	10000 Dual Rear	158

Vehicle Identification

BODY CODES — RANGER

MFD. BY FORD MOTOR CO. IN U.S.A.	
DATE:	GVWR:
FRONT GAWR:	REAR GAWR:
WITH TIRES RIMS	WITH TIRES RIMS
AT PSI COLD	AT PSI COLD
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE	
Vehicle Identification No. 	
Type 4J 9W	
EXTERIOR PAINT COLORS DSO	
WB	Type GVW
108	R11L
Body	Trans
CH2	T
Axle	Tape
722	B
Spring	C22D

C H 2

Trim Color

Code	Color
B	Regatta Blue
D	Canyon Red
H	Desert Tan

Seat Type

Code	Seat Type
Base	
E	Vinyl Bench
G	Cloth and Vinyl Bench
XL, XLT	
C	Knit and Vinyl
D	B/Cloth and Vinyl
J	Cloth and Vinyl Bucket
XLS	
J	Cloth and Vinyl Bucket
Explorer	
E	Vinyl Bench
G	Cloth and Vinyl Bench

Cab Body Type Code

Code	Description
2	Base (Standard Cab)
D	XL Interior with Base Exterior
M	XL Exterior with Base Interior
4	XL (XL Interior and XL Exterior)
5	XLT
6	XLS

Vehicle Identification

BODY CODES — BRONCO II, LIGHT TRUCK (F-150 THRU F-350)

MFD. BY FORD MOTOR CO. IN U.S.A.	
DATE: 04	GVWR:
FRONT GAWR:	REAR GAWR:
WITH TIRES RIMS	WITH TIRES RIMS
AT PSI COLD	AT PSI COLD
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE	
Vehicle Identification No. 	
Type 7H 2W	
EXTERIOR PAINT COLORS	
WB	Type GVW
133	F252
Body	Trans
LA4	F
Axle	Tape
342	B
Spring	
2D29	

Seat Trim and Style

Bronco II	
Code	Trim Type
A	Vinyl Bucket
M	B/Cloth and Vinyl Bucket
L	B/Cloth and Vinyl Bench
K	B/Cloth Captain Chair
Light Truck Custom Bench	
B	Vinyl Bench
D	Knit Vinyl Bench
L	B/Cloth and Vinyl Bench
N	Cloth Captains Chairs
K	B/Cloth Bench

Interior Trim Color — Bronco

Code	Color
B	Blue
D	Red
H	Tan

Cab Body Styles

F-150 Thru 350 and Bronco II			
Crew Cab Code	Super Cab Code	Regular Code	Style
—	—	3	Flareside Pick-up
D	M	4	Styleside Pick-up
—	—	8	Chassis Cab
—	—	2	Bronco Base
—	—	5	Bronco XLT

Interior Trim Color — Light Truck

Code	Color
A	Charcoal
B	Blue
D	Red
H	Tan

Vehicle Identification

BODY CODES — ECONOLINE (E-150 THRU E-350)

MFD. BY FORD MOTOR CO. IN U.S.A.					
DATE:		GVWR:		LB	KG
FRONT GAWR:		LB	REAR GAWR:		LB
KG		WITH TIRES RIMS		KG	WITH TIRES RIMS
AT PSI COLD			AT PSI COLD		
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE					
Vehicle Identification No.					
Type		Truck			
9C		9N			
EXTERIOR PAINT COLORS					DSO
WB	Type GVW	Body	Trans	Axle	Spring
138	E112	EY	T	16	2C2D

↓

E	Y
---	---

Seat Trim and Style

Code	Trim	Type
A	Vinyl	Bucket
B	Vinyl	Captain Chair
E	Vinyl	Bucket
F	B/Cloth and Vinyl	Bucket
H	Cloth and Vinyl	Captain Chair

Trim Color

Code	Color
A	Charcoal
B	Regatta Blue
D	Canyon Red
H	Desert Tan
Y	Sand Beige

Vehicle Identification

TRANSMISSION CODES

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

7H 9W

EXTERIOR PAINT COLORS

DSO

WB	Type GVW	Body	Trans	Axle	Tape	Spring
133	F252	LA4	F	342	B	2D29



Code	Description
Ranger	
V	Automatic — C3
W	Automatic — C5
X	Manual — 4-Speed
5	Manual 5-Speed Overdrive
Bronco II	
A	Manual — 4-Speed New Process
B	Manual — 4-Speed Overdrive
F	Manual — 4-Speed Warner
K	Automatic C6
F-150 Thru F-350	
A	Manual — 4-Speed New Process 435
B	Manual — 4-Speed Overdrive
F	Manual — 4-Speed Warner-T18
P	Manual — 4-Speed Warner-T19
C	Manual — 3-Speed Ford
K	Automatic — C6
T	Automatic — AOD
E-150 — E-350	
A	Manual — 4-Speed New Process
F	Manual — 4-Speed Warner
C	Manual — 3-Speed
B	Manual — 4-Speed Overdrive
G	Automatic Cruise-O-Matic C6
T	Automatic 4-Speed AOD

Vehicle Identification

AXLE CODES

MFD. BY FORD MOTOR CO. IN U.S.A.

DATE:
FRONT GAWR:

GVWR:
REAR GAWR:

WITH
TIRES
RIMS

WITH
TIRES
RIMS

AT PSI COLD

AT PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

7H 9W

EXTERIOR PAINT COLORS

DSO

WB	Type GVW	Body	Trans	Axle
133	F252	BA4	F	342

34

2

Rear Axle Codes

Code	Description	#Capacity	Ratio
Ranger			
72	Regular	2200	3.08
74	Regular	2200	3.45
84	Regular	2700	3.45
86	Regular	2700	3.73
F4	Limited Slip	2700	3.45
F6	Limited Slip	2700	3.73
Bronco II			
13	Regular	3750	4.11
16	Regular	3750	3.50
19	Regular	3750	3.55
H3	Limited Slip	3750	4.11
H6	Limited Slip	3750	3.50
H9	Limited Slip	3750	3.55
F-150 — F-350			
13	Ford	3750	4.11
14	Ford	3750	3.00
16	Ford	3750	3.50
17	Ford	3750	2.47
18	Ford	3750	3.08
19	Ford	3750	3.55
H3	Ford Limited Slip	3750	4.11
H4	Ford Limited Slip	3750	3.00

Code	Description	#Capacity	Ratio
F-150 — F-350 (Continued)			
H6	Ford Limited Slip	3750	3.50
H8	Ford Limited Slip	3750	3.08
H9	Ford Limited Slip	3750	3.55
22	Dana	5300	4.10
23	Dana	5300	3.54
24	Dana	5300	3.73
26	Ford	4050	3.55
31	Dana	6250	3.07

Vehicle Identification

REAR AXLE CODES — CONT'D

Code	Description	#Capacity	Ratio
F-150 — F-350 (Continued)			
32	Dana	6250	4.10
33	Dana	6250	3.54
34	Dana	6250	3.73
42	Dana	7400	4.10
43	Dana	7400	3.54
52	Dana	7400	4.10
53	Dana	7400	3.54
62	Dana	8200	4.10
63	Dana	8400	3.54
72	Dana	6300	4.10
73	Dana	6300	3.54
B2	Dana Limited Slip	5300	4.10
B3	Dana Limited Slip	5300	3.54
B4	Dana Limited Slip	5300	3.73
B6	Ford Limited Slip	4050	3.55
C2	Dana Limited Slip	6250	4.10
C3	Dana Limited Slip	6250	3.54
D2	Dana Limited Slip	7400	4.10
D3	Dana Limited Slip	7400	3.54
E2	Dana Limited Slip	7400	4.10
F3	Dana Limited Slip	8200	3.54
G2	Dana Limited Slip	6300	4.10
G3	Dana Limited Slip	6300	3.54

Vehicle Identification

AXLE CODES
E-150 — E-250 — E-350

DATE:

FRONT GAWR:

KG

LB

AT

PSI COLD

MFD. BY FORD MOTOR CO. IN U.S.A.

GVWR:

REAR GAWR:

KG

LB

AT

PSI COLD

WITH TIRES RIMS

WITH TIRES RIMS

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE

Vehicle Identification No.

Type

9C 9N

EXTERIOR PAINT COLORS

DSO

WB	Type GVW	Body	Trans	Axle	Spring
138	E112	EY	T	16	2C 2D

E150 — E-250 — E-350 Regular Rear Axle

Code	Description	#Capacity	Ratio
14	Ford	3750	3.00
16	Ford	3750	3.50
18	Ford	3750	3.08
23	Dana	5300	3.54
24	Dana	5300	3.73
26	Ford	4050	3.55
31	Dana	6340	3.07
32	Dana	6340	4.10
33	Dana	6340	3.54
52	Dana	7400	4.10
53	Dana	7400	3.54

Vehicle Identification

AXLE CODES — CONT'D

E-150 — E-250 — E-350 Limited Slip Rear Axle

Code	Description	#Capacity	Ratio
H4	Ford	3750	3.00
H6	Ford	3750	3.50
H8	Ford	3750	3.08
B3	Dana	5300	3.54
B4	Dana	5300	3.73
C2	Dana	6340	4.10
C3	Dana	6340	3.54
E2	Dana	7400	4.10
E4	Dana	7400	3.73

2



Front Axle Codes (Not Applicable on E-150 Thru E-350)

Bronco II, F-150 Thru F-350, Ranger	<u>Code</u>	<u>Description</u>
	2	Front Axle Limited Slip

Vehicle Identification

DISTRICT SALES OFFICE (DSO) AND WHEELBASE (WB) CODES

MFD. BY FORD MOTOR CO. IN U.S.A.					
DATE:		GVWR:			
FRONT GAWR:		REAR GAWR:			
		WITH TIRES RIMS		WITH TIRES RIMS	
AT PSI COLD		AT PSI COLD			
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE					
Vehicle Identification No.					
Type				23	
EXTERIOR PAINT COLORS				DSO	
WB	Type GVW	Body	Trans	Axle	Tape Spring
133	F252	CH2	T	822	B C22D

DSO — FSO — PTO (DOMESTIC, FOREIGN AND SPECIAL ORDER)

The D.S.O. space will show a two-digit code number of the district which ordered the unit (see chart below). This code will appear on all units — domestic or export. If unit is built on a D.S.O., E.S.O., P.T.O. (special orders), the complete order number is under the D.S.O. space after the district code number.

Wheelbase (Inches)
94 (Bronco II) 108 (Ranger) 114 (Ranger)
Bronco II
105
F-150 thru F-350
117 133 155 137 161 139 168
E-150 thru E-350 (Econoline and Club Wagon)
124 138 158 176

Code	District
11	Boston
12	Buffalo
14	Pittsburgh
15	New York
16	Philadelphia
17	Washington
21	Atlanta
22	Charlotte
23	Memphis
24	Jacksonville
25	Richmond
26	New Orleans
28	Louisville
41	Chicago
42	Cleveland
43	Milwaukee
46	Indianapolis
47	Cincinnati
48	Detroit

Code	District
52	Dallas
53	Kansas City
54	Omaha
55	St. Louis
57	Houston
58	Twin Cities
71	Los Angeles
72	San Jose
73	Salt Lake City
74	Seattle
75	Phoenix
76	Denver
83	Government
84	Home Office Reserve
85	American Red Cross
86	Recreation Vehicles
87	Body Company
89	Transportation Services
90's	Export
00	Special

Vehicle Identification

DISTRICT SALES OFFICE (DSO) AND WHEELBASE (WB) CODES — CONT'D

Ford of Canada			
Mercury Regions	Ford Regions	Mercury Regions	Ford Regions
A1 Central	B1 Central	A6 Western	B6 Western
A2 Eastern	B2 Eastern	A7 Pacific	B7 Pacific
A3 Atlantic	B3 Atlantic	A8 Great Lakes	B8 Great Lakes
A4 Midwestern	B4 Midwestern	11 Export	11 Export



P/LT- METRIC TIRE DETAILS

Tire Cross-Section Width — given in millimeters (215/235 mm in the example at right). Increases or decreases in 10-millimeter increments to designate tire size and always ends with the numeral 5 (for example, 215, 225 or 235).

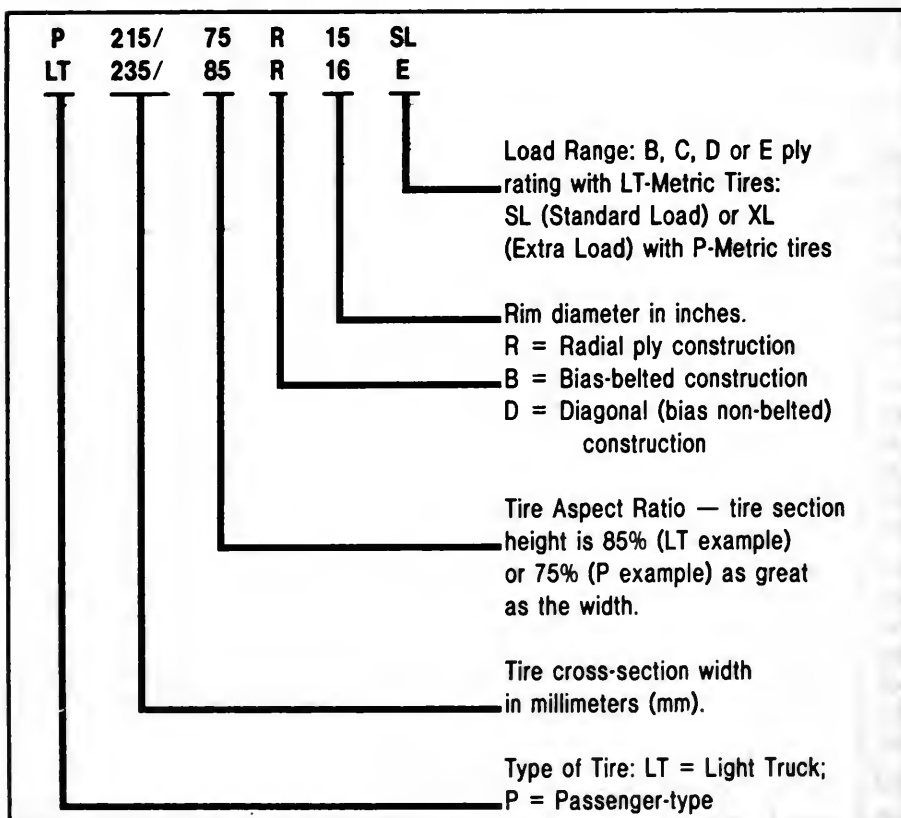
Tire Aspect Ratio — the ratio (in percent figures) of tire cross-section height to width (75/85 in examples at right). Corresponds to the previous 60-Series, 78-Series and 80-Series tires used on passenger cars.

Tire Construction — "R" (as in examples at right) indicates radial ply tire construction.

Rim Diameter — is always expressed in inches (15/16 in the examples at right), which has long been a customary tire measurement dimension.

Load Range — is expressed as "SL"/"E" (as in the examples at right) for Standard Load Range, or "XL" for Extra Load Range. Load capacity is *not* otherwise identified in the tire size designation. The load range is related to maximum tire inflation pressure. Maximum tire pressure is stamped on the tire sidewall in metric Kilo Pascals (KPA) and pounds per square inch (psi). (6.895 Kilo Pascals is about equal to one pound per square inch.) The maximum load capacity of the tire will also be stamped on the sidewall in kilograms and pounds. See the table at right for the maximum load capacity of P-Metric tires used on light trucks. Internal construction of an XL-rated tire is different than that of an SL-rated tire to carry the higher load.

*Except Canada



The following tire comparison table is presented for your convenience.

P-METRIC/ALPHA-NUMERIC TIRE COMPARISON

P-Metric Size	Max. Load Capacity (1 tire)	Previous Alpha-Numeric Size	Max. Load Capacity (1 tire)
P195/75R 15 SL	1338 lbs.	F78-15B	1363 lbs.
P205/75R 15 SL	1452 lbs.	GR60-15B & GR78-15B	1472 lbs.
P215/75R 15 SL	1583 lbs.	H78-15B	1609 lbs.
P225/75R 15 SL	1703 lbs.	JR78-15B	1690 lbs.
P235/75R 15 SL P225/75R 15 XL	1843 lbs.	L78-15B	1790 lbs.
P235/75R 15 XL	1984 lbs.	L78-15C & LR78-15C	1909 lbs.

Please note that this list is meant for comparison of tire capacities and not to indicate a replacement tire's compatibility with all vehicles. In all cases of tire replacement, the vehicle manufacturer's recommendations should be followed.

Selection of tire size and load range should be based on the highest individual wheel load of the vehicle, compared to the maximum tire capacity as shown. (Calculation of these maximum tire capacities is based on a truck service factor of 1.1 as specified by the T&RA and required by FMVSS 120.) In all cases, the tire capacity listed should exceed the maximum vehicle load on the tire for all wheel positions. Or, when replacing a specific size, load capacity should always be increased.

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — RANGER AND BRONCO II

TIRE INFLATION PRESSURES

Vehicle	Wheel-base	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal	
					Front	Rear	Front	Rear
Ranger (4x2)	108 inch (2743 mm)	3780	14 x 5.0JJ*	P185/75R 14SL	35	35	241	241
			14 x 5.0JJ*(1)(2)	P195/75R 14SL	35	35	241	241
			14 x 5.5JJ	P205/75R 14SL	35	35	241	241
		4000	14 x 5.0JJ*	P185/75R 14SL	35	35	241	241
			14 x 5.0JJ*(1)(2)	P195/75R 14SL	35	35	241	241
			14 x 5.5JJ	P205/75R 14SL	35	35	241	241
		4220	14 x 5.5JJ*	P195/75R 14SL	35	35	241	241
			14 x 5.5JJ	P205/75R 14SL	35	35	241	241
		4380	14 x 5.5JJ*(3)	P205/75R 14SL	35	35	241	241
	114 inch (2896 mm)	3800	14 x 5.5JJ*	P195/75R 14SL	35	35	241	241
			14 x 5.5JJ	P205/75R 14SL	35	35	241	241
			14 x 5.5JJ	P205/75R 14SL	35	35	241	241
		4060	14 x 5.0JJ*	P185/75R 14SL	35	35	241	241
			14 x 5.0JJ*(1)(2)	P195/75R 14SL	35	35	241	241
			14 x 5.5JJ	P205/75R 14SL	35	35	241	241
		4260	14 x 5.5JJ*	P195/75R 14SL	35	35	241	241
			14 x 5.5JJ	P205/75R 14SL	35	35	241	241
		4420	14 x 5.5JJ*(3)	P205/75R 14SL	35	35	241	241
Ranger (4x2) Chassis Cab	114 inch (2896 mm)	4260	14 x 5.5JJ*	P195/75R 14SL	35	35	241	241
			14 x 5.5JJ	P205/75R 14SL	35	35	241	241
		4420	14 x 5.5JJ*	P205/75R 14SL	35	35	241	241
		4880	14 x 6.0JJB*	P215/75R 14SL	35	35	241	241
Ranger (4x4)	108 inch (2743 mm)	4000	15 x 5.0JJ*(4)	P195/75R 15SL	35	35	241	241
			15 x 5.5JJ	P205/75R 15SL	35	35	241	241
			15 x 5.5JJ(5)	P215/75R 15SL	35	35	241	241

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — RANGER AND BRONCO II — CONT'D

TIRE INFLATION PRESSURES — CONT'D

Vehicle	Wheel- base	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal	
					Front	Rear	Front	Rear
Ranger (4x4) Cont'd	108 inch (2743 mm)	4220	15 x 5.0 JJ*(4)	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
			15 x 5.5 JJ(5)	P215/75R 15SL	35	35	241	241
		4440	15 x 5.5 JJ*(6)	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
			15 x 5.5 JJ(5)	P215/75R 15SL	35	35	241	241
		4460	15 x 5.5 JJ*	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
			15 x 5.5 JJ(5)	P215/75R 15SL	35	35	241	241
	114 inch (2896 mm)	4060	15 x 5 JJ*(4)	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P215/75R 15SL	35	35	241	241
		4280	15 x 5.0 JJ*(4)	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P215/75R 15SL	35	35	241	241
		4480	15 x 5.5 JJ*(6)	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
			15 x 5.5 JJ(7)	P205/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P215/75R 15SL	35	35	241	241
		4500	15 x 5.5 JJ*	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P215/75R 15SL	35	35	241	241
Bronco II (4x4)	94 inch (2388 mm)	3940	15 x 6.0 JJB*(4)	P195/75R 15SL	35	35	241	241
			15 x 6.0 JJB	P205/75R 15SL	35	35	241	241

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — RANGER AND BRONCO II — CONT'D

TIRE INFLATION PRESSURES — CONT'D

Vehicle	Wheel- base	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal	
					Front	Rear	Front	Rear
Bronco II (4x4) Cont'd	94 inch (2388 mm)	3940	15 x 5.5 JJ*(4)	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
		4160	15 x 6.0 JJB*(4)	P195/75R 15SL	35	35	241	241
			15 x 6.0 JJB	P205/75R 15SL	35	35	241	241
		4160	15 x 5.5 JJ*(4)	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
		4280	15 x 6.0 JJB*(4)	P195/75R 15SL	35	35	241	241
			15 x 6.0 JJB	P205/75R 15SL	35	35	241	241
		4280	15 x 5.5 JJ*(4)	P195/75R 15SL	35	35	241	241
			15 x 5.5 JJ	P205/75R 15SL	35	35	241	241
		4500	15 x 5.5 JJ*(7)	P205/75R 15SL	35	35	241	241

NOTES:

*Minimum wheel/tire sizes recommended for gross vehicle weight rating (front and rear). All other combinations are optional.

(1) P195/75R 14SL minimum tire with 2.0/2.3L manual transmission and 3.73 axle.

(2) White styled wheel option must have minimum of P195/75R 14SL tire.

(3) Available on camper package only.

(4) P195/75R 15 BSW Highway glass belt standard (steel optional).

(5) Not available with auxiliary fuel tank option.

(6) Steel belt optional.

(7) Snow plow prep package or maximum front GAWR only.

For all tire installations on any vehicle

- Do not mix tire brands.
- Do not mix radials, bias or bias-belted tires.

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — F-150-F-350 AND BRONCO

Vehicle	Wheel-base	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal(kPa)	
					Front	Rear	Front	Rear
F-150 (4x2) RC, SWB	117 inch (2967mm)	4800	15 x 5.5K*	P195/75R 15SL	35	35	241	241
			15 x 5.5K	P215/75R 15SL	35	35	241	241
			15 x 6.0JK	P235/75R 15XL	35	41	241	283
		5250	15 x 5.5K*	P215/75R 15SL	35	35	241	241
			15 x 6.0JK	P235/75R 15XL	35	41	241	283
F-150 (4x2) RC, LWB	133 inch (3378mm)	4900	15 x 5.5K*	P195/75R 15SL	35	35	241	241
			15 x 5.5K	P215/75R 15SL	35	35	241	241
			15 x 6.0JK	P235/75R 15XL	35	41	241	283
		5450	15 x 5.5K*	P215/75R 15SL	35	35	241	241
			15 x 6.0JK	P235/75R 15XL	35	41	241	283
			15 x 6.0JK*	P235/75R 15XL	41	41	283	283
F-150 (4x2) SC, SWB	139 inch (3526mm)	6050	15 x 6.0JK*	P235/75R 15XL	41	41	283	283
F-150 (4x2) SC, LWB	155 inch (3937mm)	6250	15 x 6.0JK*	P235/75R 15XL	41	41	283	283
F-150 (4x4) RC, SWB	117 inch (2967mm)	6100	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
F-150 (4x4) RC, LWB	133 inch (3378mm)	6250	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
			15 x 6.0JK(1)	P235/75R 15XL	38	41	262	283
F-150 (4x4) SC, LWB	155 inch (3937mm)	6450	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
Bronco	105 inch (2660mm)	5950	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
			15 x 7.0JJ	31-10.5RX 15C	35	35	241	241
			15 x 6.0JK* (1)(2)(3)	P235/75R 15XL	38	41	262	283
			15 x 7.0JJ	31-10.5RX 15C	40	40	276	276
		6300	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
			15 x 7.0JJ	31-10.5RX 15C	40	40	276	276
			15 x 6.0JK*(1)(2)	P235/75R 15XL	38	41	262	283
			15 x 7.0JJ(1)	31-10.5RX 15C	40	40	276	276

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — F-150-F-350 AND BRONCO — CONT'D

Vehicle	Wheel-base	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal(kPa)	
					Front	Rear	Front	Rear
F-250 (4x2) RC	133 inch (3378mm)	6300	16 x 6K*	LT215/85R 16C	51	51	352	352
			16 x 6K	LT215/85R 16D	51	51	352	352
			16 x 6K	LT235/85R 16D	44	44	303	303
			16 x 6K	LT235/85R 16E	44	44	303	303
			16 x 6K	7.50R-16D	40	50	276	345
		7300	16 x 6K*	LT235/85R 16D	44	65	303	448
			16 x 6K	LT235/85R 16E	44	65	303	448
		7800	16 x 6K*	LT235/85R 16D	44	65	303	448
			16 x 6K	LT235/85R 16E	44	65	303	448
		8600	16 x 6K*	LT235/85R 16E	51	80	352	552
F-250 (4x2) CHC	133 inch (3378mm)	8600	16 x 6K*	LT235/85R 16E	51	80	352	552
F-250 (4x2) SC	155 inch (3937mm)	8800	16 x 6K*	LT235/85R 16E	51	80	352	552
F-250 (4x4) RC	133 inch (3378mm)	6600	16 x 6K*	LT215/85R 16C	51	51	352	352
			16 x 6K	LT215/85R 16D	51	51	352	352
			16 x 6K	LT235/85R 16D	44	44	303	303
			16 x 6K	LT235/85R 16E	44	44	303	303
			16 x 6K	7.50R-16D	45	50	310	345
		6600	16 x 6K(4)	LT215/85R 16D	51	65	352	448
			16 x 6K(4)	LT235/85R 16D	51	51	352	352
			16 x 6K(4)	LT235/85R 16E	44	44	303	303
			16 x 6K(4)	7.50R-16D	45	50	310	345
		6600	16 x 6K*(5)	LT215/85R 16D	65	65	448	448
			16 x 6K(5)	LT235/85R 16D	58	58	400	400
			16 x 6K(5)	LT235/85R 16E	58	58	400	400
			16 x 6K(5)	7.50R-16D	60	60	414	414
		8600	16 x 6K*	LT235/85R 16E	44	80	303	552
			16 x 6K(4)	LT235/85R 16E	44	80	303	552
			16 x 6K(5)	LT235/85R 16E	58	80	400	552

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — F-150-F-350 AND BRONCO — CONT'D

Vehicle	Wheel-base	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal(kPa)	
					Front	Rear	Front	Rear
F-250 (4x4) SC	155 inch (3937mm)	8600	16 x 6K*	LT235/85R 16E	51	80	352	552
			16 x 6K(1)(4)	LT235/85R 16E	58	80	400	552
F-350 (4x2) S/R, RC	133 inch (3378mm)	8700	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x2) CHC	137 inch (3475mm)	8700	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x2) CHC	161 inch (4085mm)	9000	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x2) Crew Cab	168 inch (4278mm)	8700	16 x 6K*	LT235/85R 16E	51	80	352	552
		9200	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x4) RC	133 inch (3378mm)	9000	16 x 6K*	LT235/85R 16E	51	80	352	552
			16 x 6K(1)	LT235/85R 16E	65	80	448	552
		10100	16 x 6K	LT235/85R 16E	65	80	448	552
F-350 (4x4) CHC	133 inch (3378mm)	9000	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x4) Crew Cab	168 inch (4278mm)	9300	16 x 6K*	LT235/85R 16E	51	80	352	552
			16 x 6K(1)	LT235/85R 16E	58	80	400	552
F-350 D/R, RC	133 inch (3378mm)	10000	16 x 6K*	LT215/85R 16D	58	65	400	448
			16 x 6K(6)	7.50-16D	45	60	310	414
F-350 D/R, SWB, CHC	137 inch (3475mm)	10000	16 x 6K*	LT215/85R 16D	58	58	400	400
			16 x 6K(6)	7.50-16D	45	50	310	345
		11000	16 x 6K*	LT215/85R 16D	58	65	400	448
			16 x 6K(6)	7.50-16D	50	60	345	414
F-350 D/R, LWB, CHC	161 inch (4085mm)	10000	16 x 6K*	LT215/85R 16D	58	58	400	400
			16 x 6K(6)	7.50-16D	45	50	310	345
		11000	16 x 6K*	LT215/85R 16D	58	65	400	448
			16 x 6K(6)	7.50-16D	50	60	345	414
F-350 D/R Crew Cab	168 inch (4278mm)	10000	16 x 6K*	LT215/85R 16D	58	65	400	448
			16 x 6K	7.50-16D	45	60	310	414

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — F-150-F-350 AND BRONCO — CONT'D

Vehicle	Wheel-base	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal(kPa)	
					Front	Rear	Front	Rear
F-350 D/R (4x4), CHC	137 inch (3475mm)	11000	16 x 6K*	LT235/85R 16E	65	65	448	448

NOTES:

*Minimum wheel/tire sizes recommended for gross vehicle weight rating (front and rear). All other combinations are optional.

- (1) Vehicles for heavy duty front end option. Bronco, F-150 4x4 and F-350 4x4.
- (2) Vehicles with snow plow prep option.
- (3) 49 state vehicles only.
- (4) Heavy duty front end option A for F-250 4x4.
- (5) Heavy duty front end option B for F-250 4x4.
- (6) Vehicles for Canada only.

For all tire installations on any vehicle:

- Do not mix tire brands.
- Do not mix radials, bias or bias-belted tires.

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — E-150-E-350

Vehicle	Wheelbase	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal (kPa)	
					Front	Rear	Front	Rear
F-150 (4x2) RC, SWB	117 inch (2967 mm)	4800	15 x 5.5K*	P195/75R 15SL	35	35	241	241
			15 x 5.5K	P215/75R 15SL	35	35	241	241
			15 x 6.0JK	P235/75R 15XL	35	41	241	283
		5250	15 x 5.5K*	P215/75R 15SL	35	35	241	241
			15 x 6.0JK	P235/75R 15XL	35	41	241	283
F-150 (4x2) RC, LWB	133 inch (3378 mm)	4900	15 x 5.5K*	P195/75R 15SL	35	35	241	241
			15 x 5.5K	P215/75R 15SL	35	35	241	241
			15 x 6.0JK	P235/75R 15XL	35	41	241	283
		5450	15 x 5.5K*	P215/75R 15SL	35	35	241	241
			15 x 6.0JK	P235/75R 15XL	35	41	241	283
F-150 (4x2) SC, LWB	139 inch (3526 mm)	6050	15 x 6.0JK*	P235/75R 15XL	41	41	283	283
F-150 (4x2) SC, SWB	155 inch (3937 mm)	6250	15 x 6.0JK*	P235/75R 15XL	41	41	283	283
F-150 (4x4) RC, SWB	117 inch (2967 mm)	6100	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
F-150 (4x4) RC, LWB	133 inch (3376 mm)	6250	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
			15 x 6.0JK(1)	P235/75R 15XL	38	41	262	283
F-150 (4x4) SC, LWB	155 inch (3937 mm)	6450	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
Bronco	105 inch (2660 mm)	5950	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
			15 x 7.0JJ	31-10.5RX 15C	35	35	241	241
			15 x 6.0JK*(1)(2)(3)	P235/75R 15XL	38	41	262	283
			15 x 7.0JJ	31-10.5RX 15C	40	40	276	276
		6300	15 x 6.0JK*	P235/75R 15XL	35	41	241	283
			15 x 7.0JJ	31-10.5RX 15C	40	40	276	276
			15 x 6.0JK*(1)(2)	P235/75R 15XL	38	41	262	283
			15 x 7.0JJ(1)	31-10.5RX 15C	40	40	276	276

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — E-150-E-350 — CONT'D

Vehicle	Wheelbase	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal (kPa)	
					Front	Rear	Front	Rear
F-250 (4x2) RC	133 inch (3378 mm)	6300	16 x 6K*	LT215/85R 16C	51	51	352	352
			16 x 6K	LT215/85R 16D	51	51	352	352
			16 x 6K	LT235/85R 16D	44	44	303	303
			16 x 6K	LT235/85R 16E	44	44	303	303
			16 x 6K	7.50R 16D	40	50	276	345
		7300	16 x 6K*	LT235/85R 16D	44	65	303	448
			16 x 6K	LT235/85R 16E	44	65	303	448
		7800	16 x 6K*	LT235/85R 16D	44	65	303	448
			16 x 6K	LT235/85R 16E	44	65	303	448
		8600	16 x 6K*	LT235/85R 16E	51	80	352	552
F-250 (4x2) CHC	133 inch (3378 mm)	8600	16 x 6K*	LT235/85R 16E	51	80	352	552
F-250 (4x2) SC	155 inch (3937 mm)	8800	16 x 6K*	LT235/85R 16E	51	80	352	552
F-250 (4x4) RC	133 inch (3378 mm)	6600	16 x 6K*	LT215/85R 16C	51	51	352	352
			16 x 6K	LT215/85R 16D	51	51	352	352
			16 x 6K	LT235/85R 16D	44	44	303	303
			16 x 6K	LT235/85R 16E	44	44	303	303
			16 x 6K	7.50R 16D	45	50	310	345
		6600	16 x 6K(4)	LT215/85R 16D	51	65	352	448
			16 x 6K(4)	LT235/85R 16D	51	51	352	352
			16 x 6K(4)	LT235/85R 16E	44	44	303	303
			16 x 6K(4)	7.50R 16D	45	50	310	345
		6600	16 x 6K*(5)	LT215/85R 16D	65	65	448	448
			16 x 6K(5)	LT235/85R 16D	58	58	400	400
			16 x 6K(5)	LT235/85R 16E	58	58	400	400
			16 x 6K(5)	7.50R 16D	60	60	414	414
		8600	16 x 6K*	LT235/85R 16E	44	80	303	552
			16 x 6K(4)	LT235/85R 16E	44	80	303	552
			16 x 6K(5)	LT235/85R 16E	58	80	400	552

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — E-150-E-350 — CONT'D

Vehicle	Wheelbase	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal (kPa)	
					Front	Rear	Front	Rear
F-250 (4x4) SC	155 inch (3937 mm)	8600	16 x 6K*	LT235/85R 16E	51	80	352	552
			16 x 6K(1)(4)	LT235/85R 16E	58	80	400	552
F-350 (4x2) S/R, RC	133 inch (3378 mm)	8700	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x2) CHC	137 inch (3475 mm)	8700	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x2) CHC	161 inch (4085 mm)	9000	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x2) Crew Cab	168 inch (4278 mm)	8700	16 x 6K*	LT235/85R 16E	51	80	352	552
		9200	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x4) RC	133 inch (3378 mm)	9000	16 x 6K*	LT235/85R 16E	51	80	352	552
			16 x 6K(1)	LT235/85R 16E	65	80	448	552
		10,100	16 x 6K	LT235/85R 16E	65	80	448	552
F-350 (4x4) CHC	133 inch (3378 mm)	9000	16 x 6K*	LT235/85R 16E	51	80	352	552
F-350 (4x4) Crew Cab	168 inch (4278 mm)	9300	16 x 6K*	LT235/85R 16E	51	80	352	552
			16 x 6K(1)	LT235/85R 16E	58	80	400	552
F-350 D/R, RC	133 inch (3378 mm)	10,000	16 x 6K*	LT215/85R 16D	58	65	400	448
			16 x 6K(6)	7.50R 16D	45	60	310	414
F-350 D/R, SWB CHC	137 inch (3475 mm)	10,000	16 x 6K*	LT215/85R 16D	58	58	400	400
			16 x 6K(6)	7.50R 16D	45	50	310	345
		11,000	16 x 6K*	LT215/85R 16D	58	65	400	448
			16 x 6K(6)	7.50 16D	50	60	345	414

Chassis — Wheels and Tires

WHEEL AND TIRE COMBINATIONS AND TIRE INFLATION PRESSURES — E-150-E-350 — CONT'D

Vehicle	Wheelbase	Gross Vehicle Weight (GVW)	Wheel	Tire	Recommended Cold Inflation Pressure			
					PSI		Kilopascal (kPa)	
					Front	Rear	Front	Rear
F-350 D/R, LWB, CHC	161 inch (4085 mm)	10,000	16 x 6K*	LT215/85R 16D	58	58	400	400
			16 x 6K(6)	7.50 16D	45	50	310	345
		11,000	16 x 6K*	LT215/85R 16D	58	65	400	448
			16 x 6K(6)	7.50 16D	50	60	345	414
F-350 D/R Crew Cab	168 inch (4278 mm)	10,000	16 x 6K*	LT215/85R 16D	58	65	400	448
			16 x 6K	7.50 16D	45	60	310	414
F-350 D/R (4x4) CHC	137 inch (3475 mm)	11,000	16 x 6K*	LT235/85R 16E	65	65	448	448

NOTES:

* Minimum wheel/tire sizes recommended for gross vehicle weight rating (front and rear). All other combinations are optional.

- (1) Vehicles for heavy duty front end option. Bronco, F-150 4x4 and F-350 4x4.
- (2) Vehicles with snow plow prep option.
- (3) 49 State vehicles only.
- (4) Heavy duty front end option A for F-250 4x4.
- (5) Heavy duty front end option B for F-250 4x4.
- (6) Vehicles for Canada only.

For all tire installations on any vehicle:

- Do not mix tire brands.
- Do not mix radials, bias or bias-belted tires.

Chassis — Wheels and Tires

TORQUE SPECIFICATIONS

Lug Nuts — F-150 Through F-350, E-150 Through E-350 Bronco

Vehicle	Wheel	Bolt Size	Torque (1)	
			N-m	ft-lbs
E-150, F-150, Bronco	5-Lug Wheel	1/2-20	115-156	85-115
E-250, F-250 (Under 8,500 GVW)	8-Lug Wheel	1/2-20	115-156	85-115
E-250, E-350, F-250 (Over 8,500 GVW) F-350 — Single Rear Wheel Vehicles	8-Lug Wheel	9/16-18	156-237	115-175
E-350, F-350 — Dual Rear Wheel Vehicles with Integral Two-Piece Swiveling Lug Nuts	8-Lug Wheel	9/16-18	169-210	125-155

(1) Torque Specifications are for clean, dirt-and-paint-free dry bolt and nut threads.

Wheel Hubs and Bearings

Vehicle	Component	N-m	ft-lb
Ranger 4x2	Front Wheel Bearing Adjusting Nut	24-33	17-25

Chassis — Wheels and Tires

TORQUE SPECIFICATIONS — CONT'D

Wheel Hubs and Bearings

Vehicle	Component	N-m	Ft-Lb
F-250/350 (4x4)	Front wheel bearing outer lock nut	88	65
Bronco F-150/250 (4x4)	Spindle retaining nuts	27-41	20-30
F-350 (4x4)	Spindle retaining nuts	68-81	50-60
F-350 (4x2) E-350	Full floating rear axle adjusting nut (2)	163-189	120-140
F-350 (4x2) E-350	Full floating rear axle lock bolts	55-67	40-50

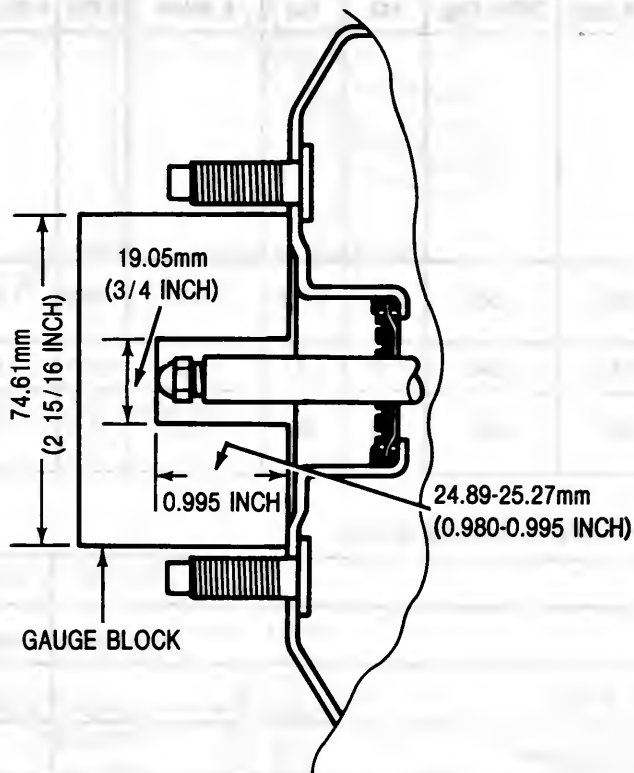
(2) After tightening, back off $1/8$ - $3/8$ turn, or enough to provide 0.025-0.254mm (0.001-0.010 inch) end play.

SERVICE SPECIFICATIONS

Brake Pedal Free Travel — All Vehicles

Brake pedal free travel should not exceed half the distance to the floor.

Bendix Push Rod Gauge Dimensions and Adjustment — All Vehicles



Chassis — Brakes

SERVICE SPECIFICATIONS — CONT'D

Master Cylinder Specifications

Truck Series	For Manual Operation			With Power Booster					
	(Delete Option Only) E-150 Base GVWR Only	(Delete Option Only) F-150 Base GVWR Only	Ranger 4x2	Ranger 4x2 4x4	E-150 F-150 (4x2) F-150 (4x4) Bronco F-250 (4x2) 6900 GVWR & Below	E-250	F-250 (4x2) Above 6900 GVWR F-250 (4x4)	E-350	F-250 H.D. (Over 8500 GVWR) & F-350
Part Number									
Piston Diameter	1.000	1.000	.9375	.9375	1.000	1.062	1.062	1.062	1.062
Stroke (in.)	1.343	1.343	1.17	1.37	1.408	1.617	1.617	1.617	1.617
Displ. (Min.) (cu. in.)	.958	.958	.73	.85	1.010	1.337	1.337	1.337	1.337

Drum Brakes — Brake Lining Sizes

Vehicle	Lining Size
Ranger	9" x 1 3/4"
F-150, Bronco, E-150	11 1/32" x 2 1/4"
F-250, E-250, E-350 Vans	12" x 2 1/2"
F-250 HD, F-350, E-350 Super Wagon and Parcel Delivery Van	12" x 3"

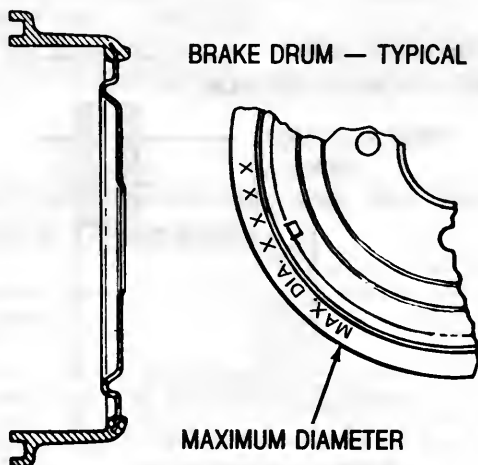
Drum Runout — Measured 19.05mm (3/4 inch)

11, 12 inch Brakes..... 0.177mm (0.007 inch) TIR Maximum

SERVICE SPECIFICATIONS — CONT'D

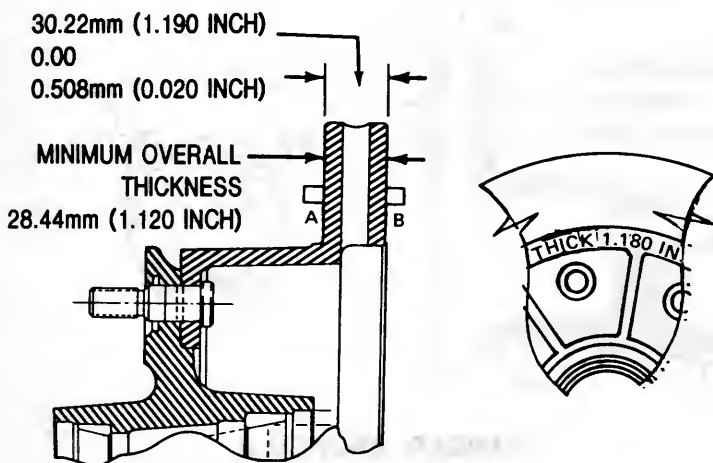
Drum Brakes — Cont'd

Maximum Inside Braking Surface Diameter Marking Location — All Vehicles Rear Brakes



Disc Brakes

Rotor Service Limits — All Vehicles

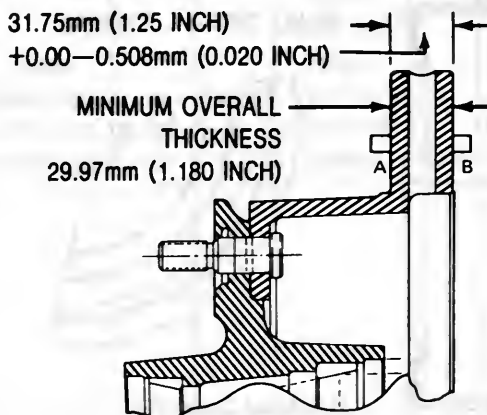


F-150 (4 x 2) F-150 (4 x 4) E-150
AND BRONCO, F-250 (4 x 2), F-250 6900 GVWR

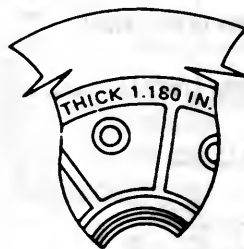
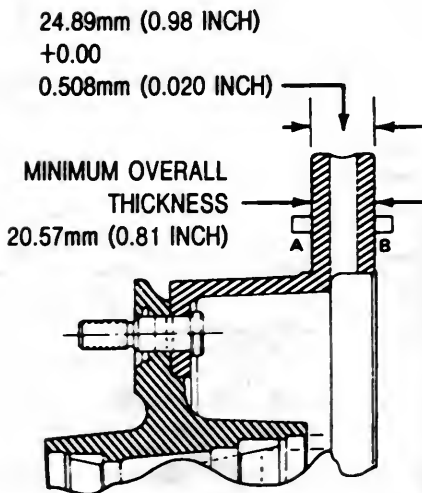
SERVICE SPECIFICATIONS — CONT'D

Disc Brakes

Rotor Service Limits — All Vehicles — Cont'd



F-250 (4 x 4) AND F-250
ABOVE 6800 GVW (4 x 2) E-250-350



RANGER, BRONCO II

Chassis — Brakes

SERVICE SPECIFICATIONS — CONT'D

Disc Brakes — Cont'd

Brake Lining Material — F-150-350, Bronco, E-150-350

Application	Material
E-150 — E-350, F-150 — F-350 (4x2)	Bendix FMD 7133
F-150 — F-350 (4x4) and Bronco	Bendix FMD 7161A

Disc Brake Shoe and Lining Dimensions H.D. Rail Sliding Caliper F-250 — F-350 (4x2) (4x4) and E-250 — E-350

Lining length	188.46 mm (7.42 inch)
Lining area (per brake)	83.68 cm (12.97 inch)
Lining thickness	11.07 mm (0.436 inch) minimum
Lining maximum wear Limit (from front surface of shoe above backing plate)	0.793 mm (1/32 inch)

SERVICE SPECIFICATIONS — CONT'D

Disc Brakes — Cont'd

Rotor Base Line Setting and Minimum Thickness — Ranger

Vehicle	Base Line Setting	Rotor Minimum Thickness (1)
	54mm Ball (2-125 Inch)	
Ranger and Bronco II	6.50mm (0.256 Inch)	20.6mm (0.81 Inch)

(1) Rotors having a thickness less than shown here must be replaced regardless of the micrometer gauge bar and ball measurement.

Rotor Repair Dimensions — E-F-150-350, Bronco

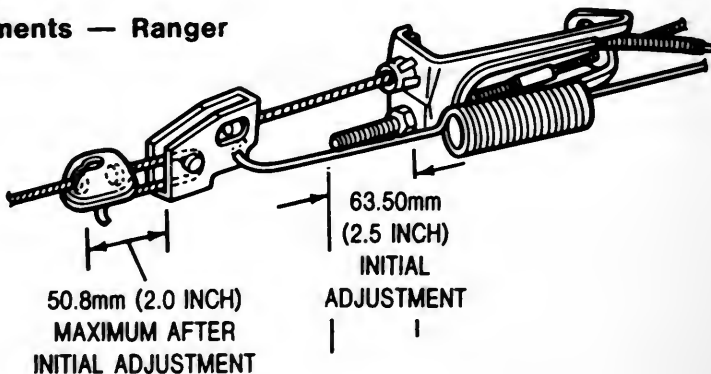
Description	Application	MM	Inch
Minimum rotor thickness (Discard thickness)		20.57	0.81
	Bronco, F-150 (4x4)	28.44	1.12
	F-250 (4x4)	29.97	1.18
	F-150/F-250 (6200/6900 GVWR)		
	L.D. integral hub and rotor	28.44	1.12
	H.D. integral hub and rotor	29.97	1.18
	2-Piece hub and rotor	29.97	1.18
Rotor thickness maximum variation	Integral hub and rotor	0.0127	0.0005
	Integral hub and rotor — F-150/F-350 (4x4)	0.0177	0.0007
	and Bronco	0.127	0.005
	Separate hub and rotor	0.0254	0.0010
Lateral runout (maximum) (1) (2)	Integral hub and rotor	0.0762	0.003
	Separate hub and rotor	0.254	0.010
Rotor Surface finish		5-80 R.M.S.	

(1) Total indicator rating on both surfaces at inside diameter.

(2) 152 mm (6 inch) diameter.

Parking Brake

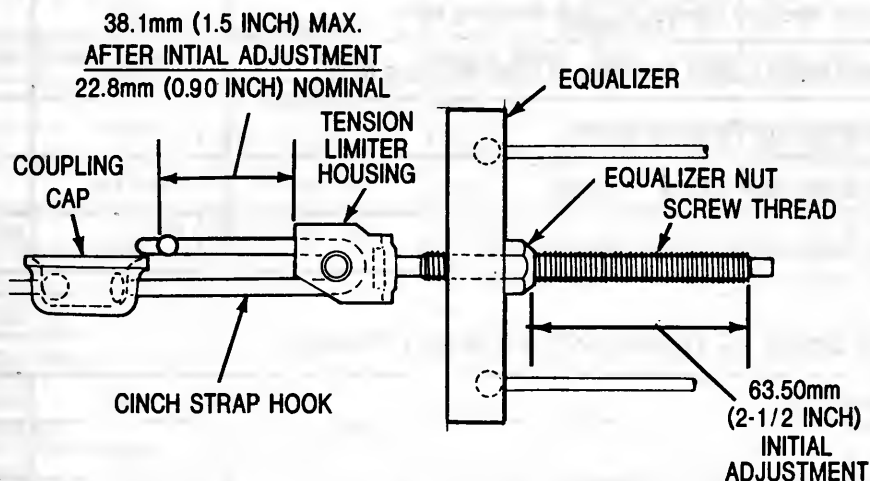
Initial Adjustments — Ranger



SERVICE SPECIFICATIONS — CONT'D

Disc Brakes — Cont'd

Initial Adjustments — E,F-150-350, Bronco



CABLE TENSION LIMITER ASSEMBLY

Parking Brake Cable Tension Adjustment — All Vehicles

Model	Rear Cable Tension(1)	
	Lbs.	Newtons
Ranger	400-600	1780-2670
F-150/F-350	350 Min.	1556
Bronco	350 Min.	1556
E-150/E-350	350 Min.	1556

(1) Check rear cable tension with the parking brake control fully in the last detent position.

Brake Booster Application

Vehicle	Type	Effective Diameter
Ranger (4x4)	Single Diaphragm	7.87" (200mm)
E-150	Single Diaphragm	9.30" (236mm)
Bronco	Single Diaphragm	9.84" (250mm)
F-150/250 F-350 Crew Cab (4x4)	Single Diaphragm	9.93" (252mm)
E-250	Dual Diaphragm	10" (254mm)
F-250 HD, F-350 (except 4x4 Crew Cab); E-350	Dual Diaphragm	11.18" (283mm)

Chassis — Brakes

TORQUE SPECIFICATIONS

Description	N·m	Ft-Lb
Master Cylinder Retaining Bolts	11-28	14-20
Booster Mounting Bracket to Dash Retaining Nuts	18-33	13-25
Parking Brake Control Assembly to Dash Attaching Nuts	17-23	12-17
Disc Brake Key Retaining Screw	17-27	12-20
Disc Brake Anchor Plate to Spindle	101-138	74-102
Disc Brake Hose to Caliper Attaching Bolt	24-33	17-25

Torque Limits — Hydraulic Tube Nuts (Ft-Lbs)

Thread Size	N·m	Ft-Lb (1)
3/8-24	14-20	10-15
7/16-24	14-20	10-15
1/2-20	14-23	10-17
9/16-18	14-23	10-17

(1) All hydraulic line connections (nuts) must be tightened to the specified value and free of fluid leakage.

Chassis — Steering

TURNING DIAMETERS — ECONOLINE

Truck Series/Model	W.B.	Minimum Tire Size	Wheel Size	Overall Steering Ratio	Turning Dia. (1) Feet		Inside Wheel Turn Angle	
					Curb to Curb	Wall to Wall	Left	Right

MANUAL STEERING (2)

E-150 Van	124	P205/75Rx15SL	15x5.5K	29.3:1	42.4	44.2	34.4°	34.4°
E-150 Van	138	P205/75Rx15SL	15x5.5K	29.3:1	46.5	48.4	34.4°	34.4°
E-150 Super Van	138	P235/75Rx15XL	15x6.0JK	29.3:1	46.6	48.4	34.4°	34.4°
E-250 Van (3)	138	8.00x16.5	16.5x6.0	30.7:1	48.2	50.0	33.0°	33.0°
E-250 Super Van (3)	138	8.75x16.5	16.5x6.75	29.3:1	48.3	50.0	33.0°	33.0°
E-350 Van/Super Van (3)	138	9.50x16.5	16.5x6.75	30.7:1	48.3	50.0	29.0°	29.0°
* E-350 Commercial Stripped Chassis (3)	138	9.50x16.5 Single Rear Wheels	16.5x6.75	30.7:1	47.9	(5)	29.0°	29.0°
* E-350 Commercial Stripped Chassis (3)	138	7.50x16.0 Dual Rear Wheels	16x6.0	30.7:1	47.8	(5)	33.0°	33.0°
* E-350 Commercial Stripped Chassis (3)	158	9.50x16.5 Single Rear Wheels	16.5x6.75	30.7:1	53.8	(5)	29.0°	29.0°
* E-350 Commercial Stripped Chassis (3)	158	7.50x16.0 Dual Rear Wheels	16x6.0	30.7:1	53.8	(5)	33.0°	33.0°

POWER STEERING (4)

E-150 Van	124	P205/75Rx15SL	15x5.5K	21.0:1	42.4	44.2	34.4°	34.4°
E-150 Van	138	P205/75Rx15SL	15x5.5K	21.0:1	46.5	48.4	34.4°	34.4°
E-150 Club Wagon	124	P225/75Rx15SL	15x6.0JK	21.0:1	42.4	44.2	34.4°	34.4°
E-150 Club Wagon	138	P225/75Rx15SL	15x6.0JK	21.0:1	46.5	48.4	34.4°	34.4°
E-150 Super Van	138	P235/75Rx15XL	15x6.0JK	21.0:1	46.6	48.4	34.4°	34.4°
E-250 Van	138	8.00x16.5	16.5x6.0	21.7:1	47.8	49.2	33.0°	33.0°
E-250 Club Wagon/Super Van	138	8.75x16.5	16.5x6.75	21.7:1	47.9	49.7	33.0°	33.0°
E-250 Super Wagon	138	9.50Rx16.5	16.5x6.75	21.7:1	47.9	49.7	33.0°	33.0°
E-350 Van/Super Van/Super Wagon/RV & Commercial Cutaway/PDV/Stripped Chassis	138	9.50x16.5 Single Rear Wheels	16.5x6.75	21.7:1 (23.1:1 Stripped Chassis)	47.9	49.7 (5)	29.0°	29.0°

(1) Average of Left and Right Turns

(2) Koyo Variable Ratio Manual Steering Gear — 24-27:1 Gear Ratio, 16" Steering Wheel Diameter

(3) W/Power Steering Delete Option [AHC]

(4) Ford "XR-50" Power Steering Gear — 17:1 Gear Ratio, 15" Steering Wheel Diameter (16" W/Stripped Chassis)

(5) Not Applicable to Commercial Stripped Chassis

(6) E-350 Commercial Stripped Chassis W/176" Wb. not to be advertised — per DSO direction.

* New or Revised

Chassis — Steering

TURNING DIAMETERS — ECONOLINE

Truck Series/Model	W.B.	Minimum Tire Size	Wheel Size	Overall Steering Ratio	Turning Dia. (1) Feet		Inside Wheel Turn Angle	
					Curb to Curb	Wall to Wall	Left	Right

POWER STEERING (4) — CONT'D

E-350 Commercial Cutaway (RPO)	138	8.00x16.5 Dual Rear Wheels	16.5x6.0	21.7:1	47.8	49.7	33.0°	33.0°
E-350 RV Cutaway/PDV/Commercial Cutaway (DSO)	138	8.75x16.5 Dual Rear Wheels	16.5x6.0	21.7:1	47.8	49.7	33.0°	33.0°
☆ E-350 Commercial Stripped Chassis	138	7.50x16.0 Dual Rear Wheels	16x6.0	23.1:1	47.8	(5)	33.0°	33.0°
☆ E-350 Commercial Stripped Chassis	158	9.50x16.5 Single Rear Wheels	16.5x6.75	23.1:1	53.8	(5)	29.0°	29.0°
E-350 Commercial Cutaway (RPO)/PDV	158	8.00x16.5 Dual Rear Wheels	16.5x6.0	21.7:1	53.9	55.7	33.0°	33.0°
E-350 RV Cutaway/Commercial Cutaway (DSO)	158	8.75x16.5 Dual Rear Wheels	16.5x6.0	21.7:1	53.9	55.7	33.0°	33.0°
E-350 Commercial Stripped Chassis	158	7.50x16.0 Dual Rear Wheels	16x6.0	23.1:1	53.8	(5)	33.0°	33.0°
E-350 RV Cutaway/Commercial Cutaway (DSO)	176	8.75x16.5 Dual Rear Wheels	16.5x6.0	23.1:1	59.7	61.6	33.0°	33.0°

(1) Average of Left and Right Turns

(2) Koyo Variable Ratio Manual Steering Gear — 24-27:1 Gear Ratio, 16" Steering Wheel Diameter

(3) W/Power Steering Delete Option [AHC]

(4) Ford "XR-50" Power Steering Gear — 17:1 Gear Ratio, 15" Steering Wheel Diameter (16" W/Stripped Chassis)

(5) Not Applicable to Commercial Stripped Chassis

(6) E-350 Commercial Stripped Chassis W/176" Wb. not to be advertised — per DSO direction.

☆New or Revised

Chassis — Steering

TURNING DIAMETERS — BRONCO, BRONCO II, COURIER, RANGER, F-SERIES REGULAR CAB

Series	W.B. mm (in.)	Minimum Tire Size	Manual Steering				Power Steering			
			Gear Ratio	Overall Ratio	Turning Dia.-m(ft.)(1)		Gear Ratio	Overall Ratio	Turning Dia.-m(ft.)(1)	
					Curb to Curb	Wall to Wall			Curb to Curb	Wall to Wall
☆Bronco II	2388 (94.0)	P195/75R 15SL	—	—	—	—	17:1	19.8:1	9.86 (32.35)	?? (34.42)
☆Ranger 4x2 Pickup (2)(3)	2740 (107.9)	P185/75R 14SL	23.75:1	23.9:1	11.17 (36.65)	11.83 (38.81)	17:1	19.4:1	11.17 (36.65)	11.83 (38.81)
	2892 (113.9)	P185/75R 14SL	23.75:1	23.9:1	11.71 (38.42)	12.37 (40.59)	17:1	19.4:1	11.71 (38.42)	12.37 (40.59)
☆Ranger 4x2 Chassis Cab (2)(3)	2892 (113.9)	P195/75R 15SL	23.75:1	23.9:1	11.73 (38.49)	12.37 (40.59)	17:1	19.4:1	11.73 (38.49)	12.37 (40.59)
☆Ranger 4x4 (2)(4)	2740 (107.9)	P195/75R 15SL	20-24:1	24.8-29.8:1	11.10 (36.42)	11.74 (38.52)	17:1	19.8:1	11.10 (36.42)	11.74 (38.52)
	2892 (113.9)	P195/75R 15SL	20-24:1	24.8-29.8:1	11.64 (38.19)	12.28 (40.24)	17:1	19.8:1	11.64 (38.19)	12.28 (40.29)

BRONCO, F-SERIES REGULAR CAB (2)(5)

Bronco(2)	2660 (104.7)	P215/75R 15SL	—	—	—	—	17:1	17.6:1	11.13 (36.51)	11.74 (38.51)
☆F-150 4x2	2967 (116.8)	P195/75R 15SL	24-27:1	28.3:1	12.00 (39.36)	12.63 (41.43)	17:1	17.7:1	11.95 (39.20)	12.58 (41.26)
	3378 (133.0)	P195/75R 15SL	24-27:1	28.3:1	13.43 (44.05)	14.05 (46.08)	17:1	17.7:1	13.38 (43.89)	14.01 (45.95)
F-150 4x4	2967 (116.8)	P235/75R 15XL	—	—	—	—	17:1	17.6:1	12.24 (40.15)	12.82 (42.05)
	3378 (133.0)	P235/75R 15XL	—	—	—	—	17:1	17.6:1	13.70 (44.94)	14.28 (46.84)
F-250 4x2 (U/8500 lbs.)	3378 (133.0)	LT215/85R 16	24-27:1	29.0:1	13.79 (45.23)	14.38 (47.17)	17:1	19.7:1	13.77 (45.17)	14.36 (47.10)
F-250 4x4 (U/8500 lbs.)	3378 (133.0)	LT215/85R 16	24-27:1	—	—	—	17:1	19.7:1	14.11 (46.29)	14.67 (48.12)
F-250 HD 4x2 (6)	3378 (133.0)	LT235/85R 16	24-27:1	29.0:1	13.80 (45.26)	14.38 (47.17)	17:1	19.5:1	13.78 (45.20)	14.36 (47.10)
F-250 HD 4x4	3378 (133.0)	LT235/85R 16	—	—	—	—	17:1	21.9:1	14.12 (46.33)	14.67 (48.12)

Chassis — Steering

TURNING DIAMETERS — BRONCO, F-SERIES REGULAR CAB (2)(5) — CONT'D

Series	W.B. mm (in.)	Minimum Tire Size	Manual Steering				Power Steering			
			Gear Ratio	Overall Ratio	Turning Dia.-m(ft.)(1)		Gear Ratio	Overall Ratio	Turning Dia.-m(ft.)(1)	
					Curb to Curb	Wall to Wall			Curb to Curb	Wall to Wall
F-250 HD — 350 4x2 Chassis Cab(6)	3475 (136.8)	LT235/85R 16 Single Rear Wheels	24-27:1	29.0:1	14.15 (46.41)	14.72 (48.28)	17:1	19.5:1	14.13 (46.35)	14.70 (48.22)
	4085 (160.8)	LT235/85R 16 Single Rear Wheels	24-27:1	29.0:1	16.34 (53.60)	16.90 (55.43)	17:1	19.5:1	16.31 (53.50)	16.88 (55.37)
F-350 4x2 Styleside	3378 (133.0)	LT235/85R 16 Single Rear Wheels	—	—	—	—	17:1	19.5:1	13.78 (45.20)	14.36 (47.10)
	3378 (133.0)	LT215/85R 16 Dual Rear Wheels	—	—	—	—	17:1	19.5:1	13.77 (45.17)	14.36 (47.10)
F-350 4x2 Chassis Cab(6)	3475 (136.8)	LT215/85R 16 Dual Rear Wheels	24-27:1	29.0:1	14.14 (46.38)	14.72 (48.28)	17:1	19.5:1	14.12 (46.31)	14.70 (48.22)
	4085 (160.8)	LT215/85R 16 Dual Rear Wheels	24-27:1	29.0:1	16.33 (53.56)	16.90 (55.43)	17:1	19.5:1	16.30 (53.46)	16.88 (55.37)
F-350 4x4	3378 (133.0)	LT235/85R 16	—	—	—	—	17:1	21.9:1	15.36 (50.38)	15.86 (52.02)

(1) Average of Left and Right Turns.

(2) Ford "XR-50" Power Steering Gear, 15" Steering Wheel Diameter.

(3) Koyo Manual Steering Gear, 15" Steering Wheel Diameter.

(4) Koyo Variable Ratio Manual Steering Gear, 15" Steering Wheel Diameter.

(5) Koyo Variable Ratio Manual Steering Gear, 16" Steering Wheel Diameter.

☆(6) Manual Steering Available W/4.9L I-6 [C] and Power Steering Delete Option [AHC] Only.

☆ — New or Revised

Chassis — Steering

TURNING DIAMETERS — F-SERIES SUPERCAB, CREW CAB SUPERCAB

Series	W.B. mm (in.)	Minimum Tire Size	Manual Steering				Power Steering			
			Gear Ratio	Overall Ratio	Turning Dia.-m(ft.)(1)		Gear Ratio	Overall Ratio	Turning Dia.-m(ft.)(1)	
					Curb to Curb	Wall to Wall			Curb to Curb	Wall to Wall
F-150 4x2	3526 (138.8)	P235/75R 15XL	—	—	—	—	17:1	17.7:1	13.93 (45.69)	14.52 (47.63)
	3937 (155.0)	P235/75R 15XL	—	—	—	—	17:1	17.7:1	15.36 (50.38)	15.95 (52.32)
F-150 4x4	3937 (155.0)	P235/75R 15XL	—	—	—	—	17:1	17.6:1	15.69 (51.46)	16.27 (53.37)
☆F-250 HD 4x2 (4)	3937 (155.0)	LT235/85R 16	24-27:1	29.0:1	15.81 (51.87)	16.37 (53.71)	17:1	19.5:1	15.79 (51.79)	16.35 (53.63)
☆F-250 HD 4x4	3937 (155.0)	LT235/85R 16	—	—	—	—	17:1	21.3:1	17.61 (57.78)	18.11 (59.42)

CREW CAB

☆F-350 4x2	4278 (168.4)	LT235/85R 16	24-27:1	29.0:1	17.06 (55.98)	17.62 (57.83)	17:1	19.0:1	17.05 (55.95)	17.62 (57.79)
F-350 4x4	4278 (168.4)	LT235/85R 16	—	—	—	—	17:1	21.3:1	18.97 (62.25)	19.47 (63.87)

- (1) Koyo Variable Ratio Manual Steering Gear — 24-27:1 Gear Ratio, 16" Steering Wheel Diameter.
- (2) Ford "XR50" Power Steering Gear — 17:1 Gear Ratio, 15" Steering Wheel Diameter.
- (3) Average of Left and Right Turns.
- (4) Manual Steering Available w/4.9L I-6 [C] and Power Steering Delete Option [AHC] Only.

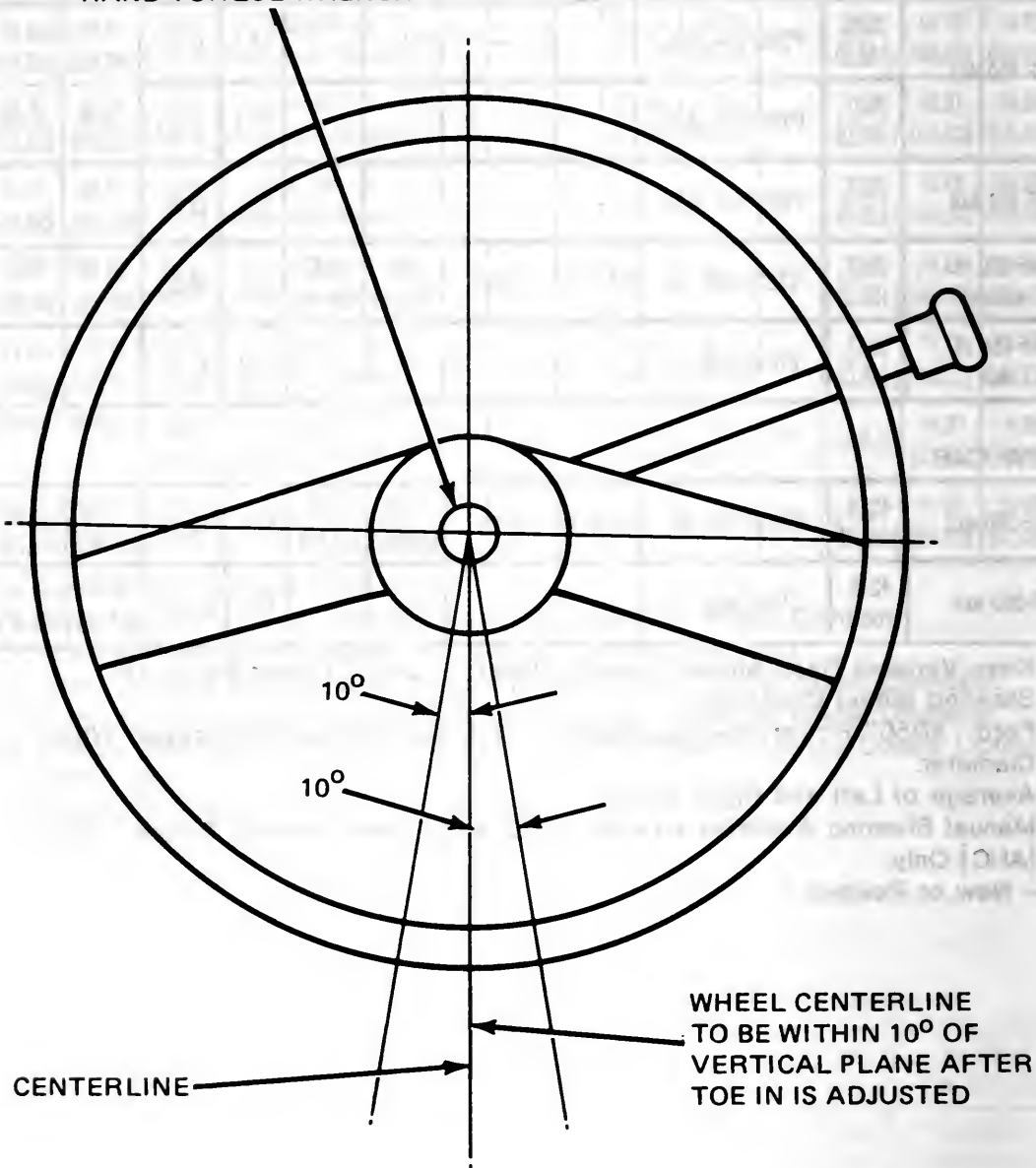
☆ — New or Revised

Chassis — Steering

STEERING WHEEL CLEAR VISION ADJUSTMENT

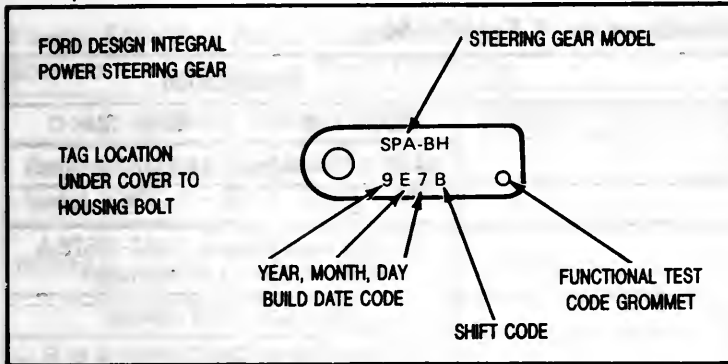
E-150 — E-350, F-150 — F-350, and Bronco

STEERING WHEEL NUT SHALL
BE CHECKED FOR MINIMUM
SPECIFIED TORQUE WITH
HAND TORQUE WRENCH

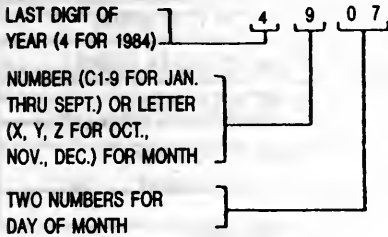


Chassis — Steering

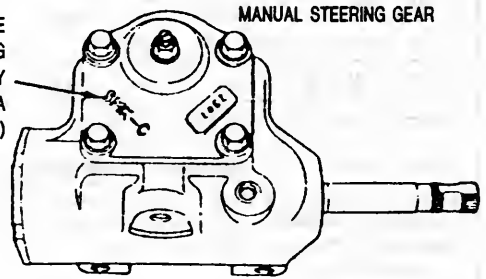
STEERING GEAR IDENTIFICATION — ALL VEHICLES



MANUFACTURING DATE CODE TO BE STAMPED ON HOUSING IN THIS AREA



MODEL NUMBER TO BE SHOWN ON HOUSING ASSEMBLY IN THIS AREA (SMK-C OR SMK-D)



G2931-1D

SERVICE SPECIFICATIONS

Manual Steering Gear Specifications — Ranger

Description	Specification	
	Model SMK-A	Model SMK-B
Gear Ratio	24:1 (Constant)	20-24:1 (Variable)
Number of Turns (Lock to Lock)	6.1	5.8
Lubricant Type	C3AZ-19578-A (or equivalent)	
Lubricant Capacity	290 grams (10.2 ounces)	
Liquid Gasket Type	D6AZ-19562-A or B (or equivalent)	
Worm Bearing Preload for Checking	22-68 N-Cm (2-6 in-lbs)	
Total Center Meshload for Checking	68-124 N-Cm (6-11 in-lbs)	
Minimum Meshload Over Preload for Checking	23 N-Cm (2 in-lbs)	
Worm Bearing Preload When Readjusting	56-68 N-Cm (5-6 in-lbs)	
Total Center Meshload When Readjusting	102-124 N-Cm (9-11 in-lbs)	
Minimum Meshload Over Preload When Readjusting	45 N-Cm (4 in-lbs)	
Maximum Clearance Between Adjusting Screw Head and Sector Shaft	0.1mm (0.004 inch)	

Chassis — Steering

SERVICE SPECIFICATIONS — CONT'D

Manual Steering Gear Specifications — E,F-150-350

Description	Specification	
Gear Ratio	Model SMK-C	Model SMK-D
	24-27:1 (Variable)	24-27:1 (Variable)
Number of Turns (Lock to Lock)	6.1	5.8
Lubricant Type	Steering Gear Grease, C3AZ-19578-A (ESW-M1C87-A) or equivalent	
Lubricant Capacity	420 grams (14.8 ounces)	
Liquid Gasket Type	Silicone Rubber, D6AZ-19562-A or B (ESB-M4G92-A and ESE-M4G195-A) or equivalent	
Worm Bearing Preload for Checking	56-102 N-Cm (5-9 in-lbs)	
Total Center Meshload for Checking	102-158 N-Cm (9-14 in-lbs)	
Minimum Meshload Over Preload for Checking	23 N-Cm (2 in-lbs)	
Worm Bearing Preload When Readjusting	79-102 N-Cm (7-9 in-lbs)	
Total Center Meshload When Readjusting	136-158 N-Cm (12-14 in-lbs)	
Minimum Meshload Over Preload When Readjusting	45 N-Cm (4 in-lbs)	
Maximum Clearance Between Adjusting Screw Head and Sector Shaft	0.1mm (0.004 inch)	

Ford Integral Power Steering Gear Specifications — All Vehicles

Description	
Type	Recirc. Ball Torsion Bar
Ratio	17:1
Turns of Steering Wheel (Lock to Lock — Linkage Disconnected)	4
Fluid Capacity (Included in Pump Reservoir Fill)	.75L (16 Pint Approx.)
Fluid Specification	ESW-M2C33-F (2)
Worm Bearing Preload	0.45-1.0 N-m (4-9 in-lbs) (1)
Worm to Piston Preload	0.11-0.34 N-m (1-3 in-lbs) (1)

(1) Not adjustable in field. Specification given for inspection purposes only.

(2) C1AZ-19582-A, C, or D or equivalent.

Power Steering Pump Specifications — Flow and Pressure — Ranger

Pump Model	Minimum Flow @ 5100 kPa (740 psi)(1)		Minimum Relief Pressure		Maximum Relief Pressure		Maximum Free Flow @ 1500 RPM	
	Liters/Minute 76°C (170°F)	Gallons/Minute 76°C (170°F)	kPa	PSI	kPa	PSI	Liters/Minute	Gallons/Minute
HBC-FR	3.4	.9	6550	950	7790	1130	9.8	2.6
HBC-HC	2.3	.6	6895	1000	7583	1100	9.8	2.6

(1) Note: Flow depends on pump model, engine RPM and pulley drive ratio. Engine idle RPM must be set to specification when checking pump minimum flow capacity.

Chassis — Steering

SERVICE SPECIFICATIONS — CONT'D

Power Steering Pump Specifications — Flow and Pressure E, F-150-350, Bronco — Chart I — Ford CII Pump

Pump Model	Minimum Flow @ 740 PSI		Minimum Pressure Relief		Maximum Pressure Relief	
	Liters/Minute 76°C + -15°C	Gallons/Minute 170°F + 5°F	kPa	PSI	kPa	PSI
HBC-FT	5.3	1.4	9653	1400	10542	1500

Chart II — Saginaw Pump

Pump Model	Minimum Flow @ 620 PSI		Minimum Relief Pressure		Maximum Relief Pressure	
	Liters/Minute 76°C + 15°F	Gallons/Minute 170°F + 5°F	kPa	PSI	kPa	PSI
HBA-GZ	6.8	1.8	9300	1350	9997	1450

Power Steering Drive — Belt Tension Specifications — Ranger

Alternator Drive Belts	Audit Tension	New Belt Tension	Reset Tension
5K Poly-V Belt	75-140 lbs. (34.1-63.5 kg)	110-140 lbs. (49.9-63.5 kg)	75-130 lbs. (34.0-58.9 kg)

Power Steering — Drive Belt Tension Specifications — E, F-150-350, Bronco

Belt Width	Minimum Tension (for use at maintenance interval only) (Hot Engine)		Installation Tension			
			Used Belt (1)		New Belt	
	Lbs	N	Lbs	N	Lbs	N
1/4"	30	133	60	267	80	356
3/8" and 15/32"	50	222	110	489	140	623
1/2"	50	222	110	489	140	623

(1) Any belt operated for 10 minutes or more is considered a used belt.

SERVICE SPECIFICATIONS — CONT'D

Meshload Checking and Setting — All Vehicles

Vehicles with 0-8046km (0-5000 Miles)	Vehicles with More Than 8046 km (5000 Miles) or Where Sector Shaft Has Been Replaced
<p>CHECKING: Reset if total meshload over mechanical center is less than 1.9 N-m (15 in-lbs) or greater than 2.9 N-m (25 in-lbs) (1)</p> <p>RESET: Set torque measured rocking across center to a value of 1.6-2.0 N-m (14-18 in-lbs) greater than that measured 45° from the right stop.</p>	<p>CHECKING: Reset if meshload measured while rocking input shaft over center is less than 0.8 N-m (7 in-lbs) (2) greater than the torque 45° from the right stop.</p> <p>RESET: Set torque measured rocking across center to a value 1.13-1.6 N-m (10-14 in-lbs) greater than that measured 45° from the right stop.</p>

(1) All except Ranger. Ranger specification is 1.5-3.2 N-m (12-29 in-lbs)

(2) All except Ranger. Ranger specification is 1.13 N-m (10 in-lbs)

Chassis — Steering

TORQUE SPECIFICATIONS

General Service

F-150 — F-350, E-150 — E-350, and Bronco

Description	Model	Torque (ft-lb)	Torque N-m
Steering Gear to Frame — Power and Manual	All	70	68-88
Pitman Arm to Steering Gear	All	170-230	230-310
Drag Link/Tie Rod End Studs	All	52-74	70-100
Linkage Adjusting Sleeve Clamp	All	29-41	40-57
Power Steering Support Bracket to Engine or A/C Bracket	E-150 — E-350 (8 Cyl.)	30-45	41-61
Power Steering Adjusting Bracket to Support Bracket	E-150 — E-350 (8 Cyl.)	30-45	41-61
Power Steering Pump to Adjusting Bracket	E-150 — E-350 (All)	30-45	41-61
Power Steering Bracket to Engine	E-150 — E-350 (6 Cyl.)	40-60	55-81
Power Steering Adjusting Bracket to Brace	E-150 — E-350 (6 Cyl.)	30-45	41-61
Power Steering Cooler to Frame Bracket	E-150 — E-350 (All)	11-16	15-21
Power Steering Pressure Hose (Pump) (Gear)	E-150 — E-350 (All)	35-24 16-25	34-46 22-33
Flange and Insulator Assembly to Steering Gear	All	28-35	38-47
Flange and Insulator to Coupling Shaft	F-150 — F-350, Bronco	14-21	18-28
Coupling Shaft to Steering Shaft	F-150 — F-350, Bronco	45-59	61-80
Flange and Insulator to Steering Column	E-150 — E-350	14-21	18-28
Steering Wheel to Steering Shaft	All	30-42	41-56
Support Bracket to Steering Column	All	13-20	18-27
Steering Column Support Bracket to Pedal Bracket	All	13-27 8-20	18-37 11-27
Steering Column Floor Opening Cover Plate to Floor	F-150 — F-350 E-150 — E-350	9-13 8-20	12-18 11-27
Steering Column Floor Opening Cover Plate Clamp	F-150 — F-350, Bronco E-150 — 350, Bronco	8-18	11-24
Shroud	All	10-15	1.1-1.7
Ignition Switch to Steering Column	All	40-60	4.5-7.3

TORQUE SPECIFICATIONS (CONT'D)

General Service — Ranger

Description	Torque	
	N-m	Ft-Lbs
MANUAL AND POWER STEERING GEARS		
Flex Coupling to Steering Gear Input Shaft	34-47	25-35
Pitman Arm to Gear Nut	230-312	170-230
Steering Gear to Frame Bolt	73-88	54-66
POWER STEERING PUMPS		
Alternator Adjusting Bolt	33-54	22-40
Alternator Pivot Bolt	55-67	40-50
Power Steering Pump to Bracket Bolt	41-61	30-45
Power Steering Pump Bracket to Engine Block Bolt	41-61	30-45
STEERING COLUMNS		
Intermediate Shaft to Steering Shaft Nut	54-68	40-50
Steering Column to Bracket Bolt	20-30	15-22
Steering Column Floor Cover Plate Bolt	12-17	9-12
Steering Wheel to Steering Shaft Nut	41-56	30-42
STEERING LINKAGE		
Drag Link to Connecting Rod Ball Stud Nut	68-101	50-75
Drag Link to Pitman Arm Ball Stud Nut	68-101	50-75
Pitman Arm to Steering Gear Nut	230-310	170-230
Tie Rod Adjusting Sleeve Nuts	40-57	29-41
Tie Rod to Spindle Ball Stud Nut	68-101	50-75

TORQUE SPECIFICATIONS (CONT'D)

Manual Steering Gear — All Vehicles Except Bronco

Application	Ranger	
	Ft-Lb	N-m
Flex Coupling to Steering Gear Input Shaft Bolt	25-35	34-47
Sector Shaft Cover Bolt	32-40	43-54
Ball Return Guide Clamp Screw	26-39(in-lb)	3-4.4
Preload Adjuster Locknut	166-187	225-253
Meshload Adjusting Screw Locknut	14-25	19-34
Sector Shaft to Pitman Arm (1)	170-230	230-312
Steering Gear to Frame	54-66	73-88

(1) Two to five full threads of sector shaft must remain exposed after nut is torqued to specification.

Manual Steering Gear — F-150-350, E-150-350

Description	Torque	
	N-m	Ft-Lbs
Sector Cover Bolts	43-54	32-40
Meshload Adjusting Screw Locknut	19-34	14-25
Preload Adjuster Lock Nut	225-253	166-187
Steering Gear to Frame Bolts — F-150 — F-350	74-89	54-66
Steering Gear to Frame Bolts — E-150 — E-350	95	70
Steering Gear to Intermediate Shaft Bolt — F-150 — F-350	34-46	25-34
Steering Gear to Flex Coupling Bolt — E-150 — E-350	28-47	20-35
Flex Coupling to Steering Column Nuts — F-150 — E-350	19-28	14-21
Pitman Arm to Steering Gear Sector Shaft Nut	230-312	170-230
	N-Cm	ln-Lbs
Ball Return Guide Tube Clamp Screws	300-440	26-39

CG4186-2A

TORQUE SPECIFICATIONS — CONT'D

Ford Integral Power Steering Gear — All Vehicles

Description	Torque Limits	
	Ft-Lb	N-m
Sector Shaft Cover Bolts	55-70	75-94
Meshload Adjusting Screw Locknut	35-45	48-61
Valve Housing to Gear Housing Bolt	35-45	48-62
Rack Retaining Nut	55-90 (1)	75-122
Piston End Cap	70-110	95-149
Pressure Hose to Gear	16-25	22-33
Return Hose to Gear	25-34	34-46
Hose Clamps	1-2	1.4-2.7
Pitman Arm to Sector Shaft Nut	170-228	230-310
	In-Lb	N-m
Ball Return Guide Clamp Screw	42-70	4.8-7.9
Set Screw Race Nut	15-25	1.7-2.8

- (1) Specified Torque — Because the length of the tool required to torque the nut will affect the observed torque reading on the torque wrench, the torque reading should be computed using the length of the torque wrench and the nominal specified torque as follows:

$$\text{Torque Reading} = \frac{\text{Length of Torque Wrench} \times 72 \text{ ft-lb}}{\text{Length of Torque Wrench} + 5.5 \text{ Inches}} \quad \text{(Using Tool T66P-3553-B)}$$

Example: With 13 inch torque wrench

$$\frac{13 \text{ In.} \times 72 \text{ ft-lb}}{13 \text{ In.} + 5.5 \text{ In.}} = \frac{13 \text{ In.} \times 72 \text{ ft-lb}}{18.5 \text{ In.}} = 0.703 \times 72 \text{ ft-lb} = 50 \text{ ft-lb}$$

Chassis — Steering

TORQUE SPECIFICATIONS — CONT'D

Power Steering Pump — CII — Ranger

Description	Torque	
	N-m	Ft-Lb
2.0L & 2.3L I-4 Gas Engines		
Alternator Adjuster Bolt	33-54	22-40
Alternator Pivot Bolt	55-67	40-50
Pump to Bracket	41-61	30-45
Bracket to Engine Block	41-61	30-45
2.8L V-6 Gas Engine		
Slider Bolts	47-64	35-47
Front and Rear Support Bracket Bolts	47-64	35-47
Pump to Bracket	47-64	35-47
Pump		
Outlet Fitting Into Valve Cover	34-46	25-34
Quick Connect Fitting	14-27	10-20

Power Steering Pump — CII — E-, F-150-350, Bronco

	4.9L (300 CID) I-6		5.0L(302 CID) V-8		5.8L(351 CID) V-8 6.6L(400 CID) V-8	
Description	N-m	Ft-Lb	N-m	Ft-Lb	N-m	Ft-Lb
Pivot Bolt	41-61	30-45	61-88	45-65	—	—
Pump to Adjustment Bracket	41-61	30-45	41-61	30-45	41-61	30-45
Adjustment Bracket to Support Bracket	41-61	30-45	41-61	30-45	41-61	30-45
Support Bracket to Engine	—	—	—	—	61-88	45-65
Support Bracket to Water Pump Housing	16-23	12-17	41-61	30-45	41-61	30-45
Pressure Hose to Rear Fitting	19-39	14-29	19-39	14-29	19-39	14-29
Pump Outlet Fitting to Pump Valve Cover	34-46	25-34	34-46	25-34	34-36	25-34
Return Hose to Gear Fitting	23-43	17-32	23-43	17-32	23-43	17-32
Return Line to Frame	15-21	11-16	15-21	11-16	15-21	11-16
Return Hose to Pump (Hose Clamp)	1.3-2.7	12-14 in-lb	1.3-2.7	12.24 in-lb	1.3-2.7	12.24

Chassis — Steering

TORQUE SPECIFICATIONS (CONT'D)

		7.5L (460 CID) Gas Engine		6.9L Diesel Engine	
Description		N-m	Ft-Lb	N-m	Ft-Lb
Pivot Bolt		41-61	30-45	41-61	30-45
Pump to Adjustment Bracket		41-61	30-45	41-61	30-45
Adjustment Bracket to Support Bracket	Long Bolt	61-81	45-65	61-81	45-65
	Short Bolt	41-61	30-45	41-61	30-45
Pressure Hose to Rear Fitting		19-39	14-29	19-39	14-29
Pump Outlet Fitting to Pump Valve Cover		34-46	25-34	34-46	25-34
Return Hose to Gear Fitting		23-43	17-32	23-43	17-32
Return Line to Frame		15-21	11-16	15-21	11-16
Return Hose to Pump (Hose Clamp)		1.3-2.7	12-24 in-lb	1.3-2.7	12-24 in-lb

Power Steering Pump — Saginaw — E-150-350, Bronco

Description	Size	Engine				Torque	
		4.9L (300 CID) I-6	5.0L (302 CID) V-8	5.8L (351 CID) V-8	7.5L (460 CID) V-8	N-m	Ft-Lb
Support bracket to engine bolt	3/8-16 x .75		X	X	X	48-60	30-45
	5/16-18 x 1.25	X				30-43	22-32
	7/16-14 x 1.25	X				55-81	40-60
Adjusting bolt	7/16-14 x .75		X	X	X	57-77	42-57
	3/8-16 x .75	X				40-60	30-45
Pump to adjusting bracket bolt	10mm x 19mm	X	X	X	X	40-60	30-45
Support bracket to adjusting bracket to engine bolt	7/16-14 x 6.00		X	X	X	57-77	42-57
Support bracket to adjusting bracket bolt	3/8-16 x .75	X				40-60	30-45
Pump to adjusting bracket nut	M-10		X	X	X	40-60	30-45
Pressure line to pump nut	—	X	X	X	X	20-35	15-25
Pressure line to gear nut	—	X	X	X	X	20-30	15-22
Return line to gear nut	—	X	X	X	X	20-30	15-22

Chassis — Suspension — Front

Front Suspension Usage

Vehicle	Axle	Springs	Shock Absorbers
Ranger (4x2) F-150 (4x2)	Twin I-Beam IFS, Stamped	Coil Computer-Selected	1 inch
F-250/350 (4x2) E-150	Twin I-Beam IFS, Forged	Coil Computer-Selected	1 inch
E-250/350	Twin I-Beam IFS, Forged	Coil Computer-Selected	1.38 inch
Ranger (4x4) Bronco II F-150 (4x4) Bronco	Twin Traction Beam IFS	Coil Computer-Selected	1 inch (1)
F-250 (4x4) F-350 (4x4) Pickup and Chassis Cab	Twin Traction Beam IFS	Leaf, Single Stage Constant Rate	1 inch
F-350 (4x4) Crew Cab	Twin Traction Beam IFS	Tapered Leaf Single Stage Constant Rate	1 inch

(1) Standard (1.38 inch optional)

Wheelbase and Tread Width (Inches)

Vehicle	Wheelbase (Inches)	Tread Width	
		Front	Rear
Ranger (4x2)	107.9/113.9	55	54.6
Ranger (4x4)	107.9/113.9	56.5	55.1
F-150 (4x2) Regular Cab	116.8/133.0	65.1	64.4
F-150 (4x2)(4x4) SuperCab	138.8/155.0	65.1	64.4
F-250 (4x2)	133/136.8/160.8	65.7	64.3
F-250 (4x4) F-350 (4x2) SRW	133	66.7	64.3
F-350 (4x2) DRW	136.8/160.8	65.7	65.1
F-350 (4x4)	133	66.9	64.3
Bronco	104.7	65.1	64.4
E-150	124/138	69.4	67.0
E-250/350	138	68.4	66.0

Chassis — Suspension — Front

Spindle Arm Stop Angle — F-Series

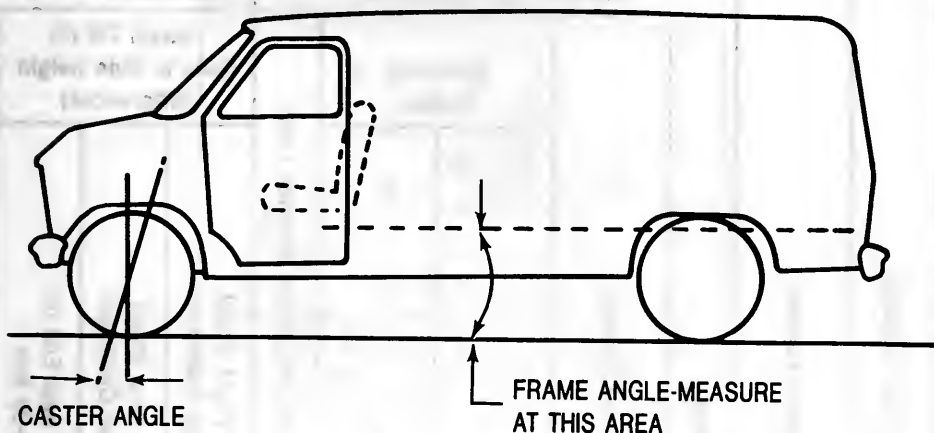
Vehicle Type	Spindle Arm Stop Angle — Degrees*	
	Kingpin	Ball Joint
F-150 (4x2) Regular & SuperCab	36.8	36.8
F-250/350 (4x2) Regular Cab, SuperCab and Crew Cab	35.0	35.0
F-150 (4x4) Regular Cab, SuperCab and Bronco	—	36.0 (1)
F-250 (4x4) Regular Cab, SuperCab and Crew Cab	—	33.4
F-350 (4x4) Regular Cab, F-250 HD (4x4)	—	30.3

*All stops are non-adjustable.

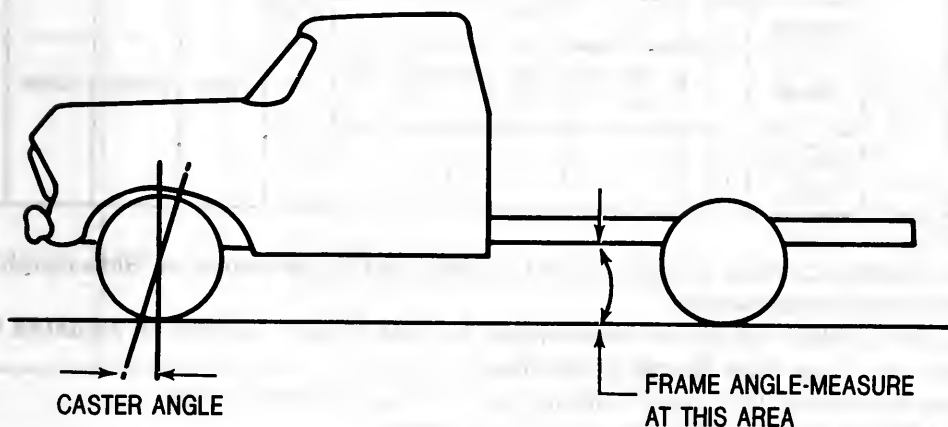
(1) 34.0 with 10x15 size tires.

Chassis — Suspension — Front

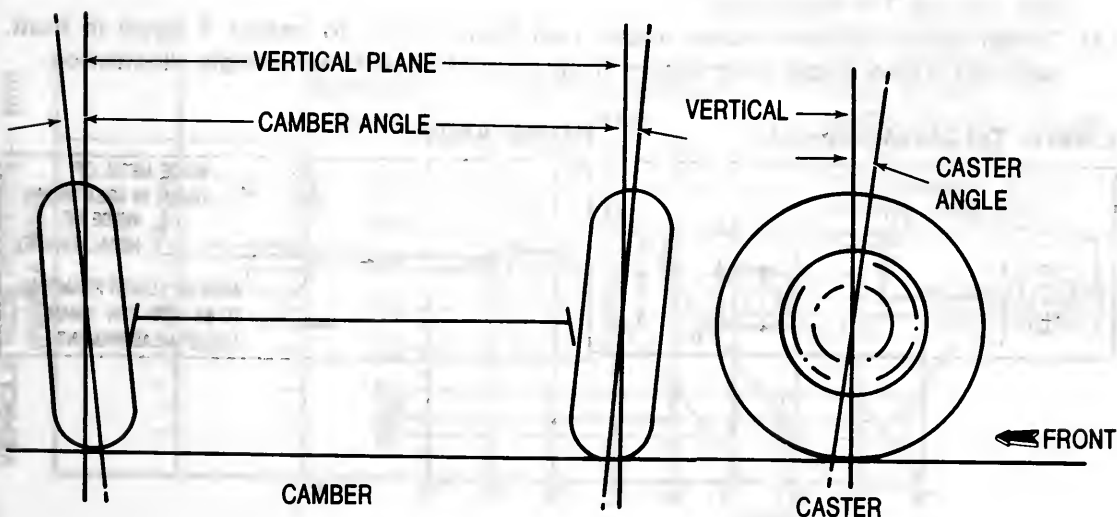
ALIGNMENT DATA — ALL VEHICLES



MODEL E-150 — E-250 — E-350



MODEL F-150 — F-350 TRUCKS



Chassis — Suspension — Front

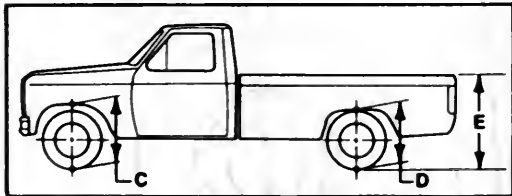
ALIGNMENT SPECIFICATIONS — RANGER (4x2)

Truck Model	Front Axle Capacity	Alignment Factors	Alignment Specifications					Standard Vehicle Attitude			
			Nominal	Preferred Setting	Checking Range		Maximum Variation Between Lines	Lateral Tilt (3) (Side to Side Height Differences)			Dog-Track Centerline of Front Tread to Centerline of Rear Tread
					Min.	Max.		"C" Front Wheel House Openings	"D" Rear Wheel House Openings	"E" Rear End of Pick-Up Box	
Ranger 4x2	2020	Caster(4)	—	(2)	(1)	(1)	1.5°	15mm	20mm	20mm	30mm
		Camber	—	(2)	(1)	(1)	0.7°				
		Toe-In	—	1/32 inch IN	3/32 inch OUT	5/32 inch IN	—				
		King Pin Angle	13°	—	—	—	—				

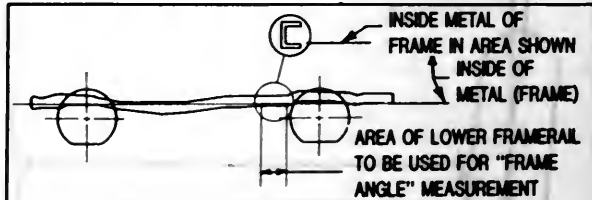
NOTES:

- (1) See Caster-Camber curves. Caster-Camber setting depends on Ride Height. See Ride Height illustration.
- (2) Caster-Camber values are determined by Ride Height. Camber is adjusted in service only. See Ride Height illustration.
- (3) Lateral Vehicle Tilt Specifications are maximum allowable for:
 - Vehicles at Curb Weight without occupants.
 - Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
 See Lateral Tilt illustration.
- (4) Caster angle includes frame angle. Add frame angle to caster if down in front. Subtract frame angle from caster if up in front. See Frame Angle illustration.

Lateral Tilt Measurement

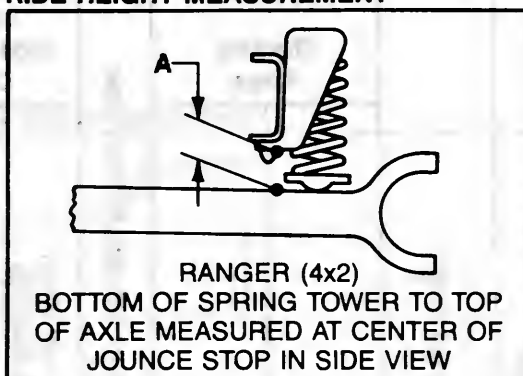


Frame Angle

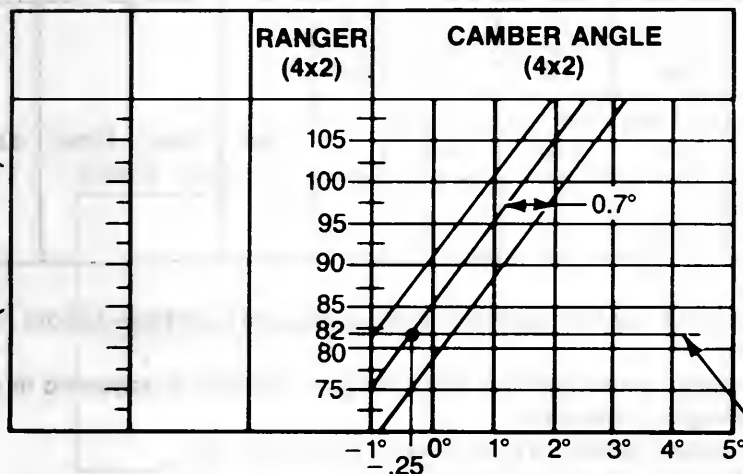


ALIGNMENT SPECIFICATIONS — RANGER (4x2) — CONT'D

RISE HEIGHT MEASUREMENT

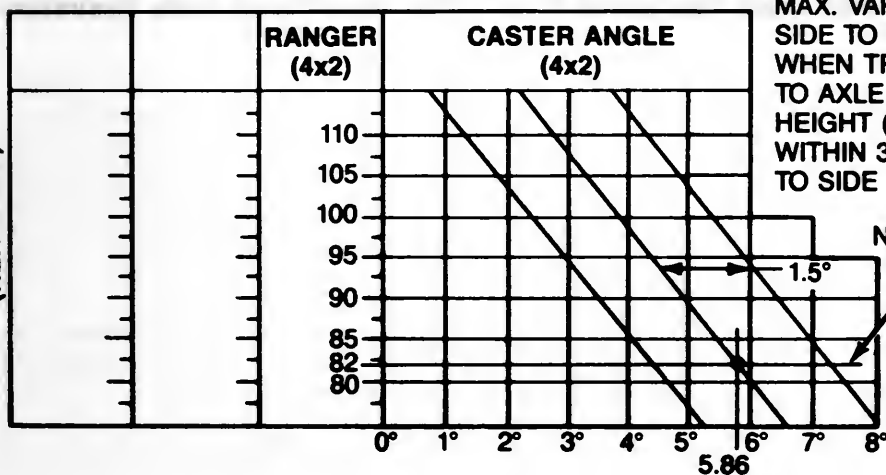


VEHICLE RIDE HEIGHTS — mm
(REF. A DIM)



SPECIFICATIONS:
MAX. VARIATION
SIDE TO SIDE:
0.7° WHEN
TRUCK AXLE TO
FRAME RIDE
HEIGHT (DIM "A")
IS WITHIN 3mm
SIDE TO SIDE

VEHICLE RIDE HEIGHTS — mm
(REF. A DIM)



SPECIFICATIONS:
MAX. VARIATION
SIDE TO SIDE: 1.5°
WHEN TRUCK FRAME
TO AXLE RIDE
HEIGHT (DIM "A") IS
WITHIN 3mm SIDE
TO SIDE

Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — RANGER (4x4)

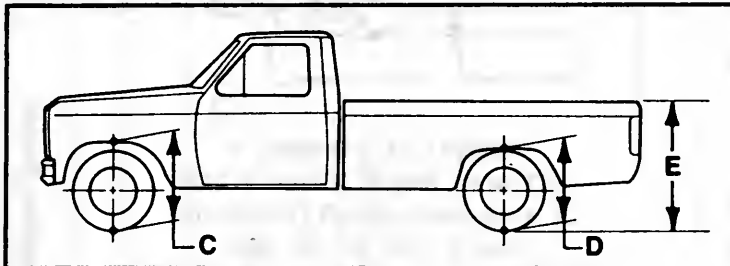
Truck Model	Front Axle Capacity	Alignment Factors	Alignment Specifications					Standard Vehicle Attitude			
			Nominal	Preferred Setting	Checking Range		Maximum Variation Between Lines	Lateral Tilt(3) (Side to Side Height Differences)			Dog-Track
					Min.	Max.		"C" Front Wheel House Openings	"D" Rear Wheel House Openings	"E" Rear End of Pick-Up Box	Centerline of Front Tread to Centerline of Rear Tread
Ranger 4x4 and Bronco II		Caster(4)	—	(2)	(1)	(1)	1.5°	15mm	20mm	20mm	30mm
		Camber	—	(2)	(1)	(1)	0.7°				
		Toe-In	—	1/32 inch IN	3/32 inch OUT	5/32 inch OUT	—				
		King Pin Angle	13°	—	—	—	—				

NOTES:

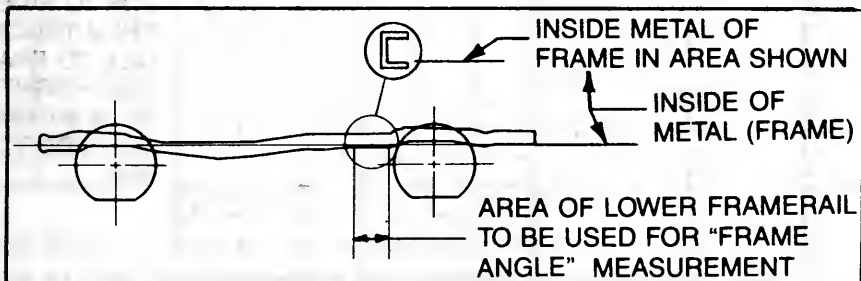
- (1) See Caster-Camber curves. Caster-Camber setting depends on Ride Height. See Ride Height illustration.
- (2) Caster-Camber values are determined by Ride Height. Camber is adjusted in service only. See Ride Height illustration.
- (3) Lateral Vehicle Tilt Specifications are maximum allowable for:
 - Vehicles at Curb Weight without occupants.
 - Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
 See Lateral Tilt illustration.
- (4) Caster angle includes frame angle. Add frame angle to caster if down in front. Subtract frame angle from caster if up in front. See Frame Angle illustration.

ALIGNMENT SPECIFICATIONS — RANGER (4x4) — CONT'D

Lateral Tilt Measurement

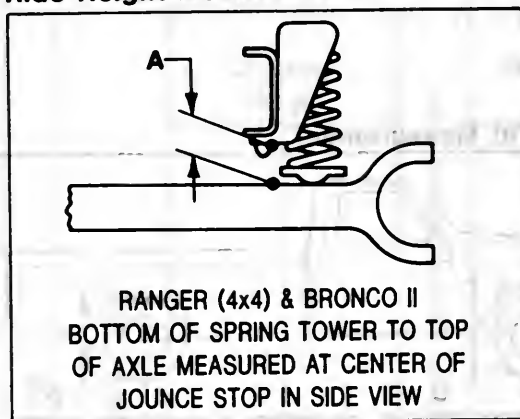


Frame Angle

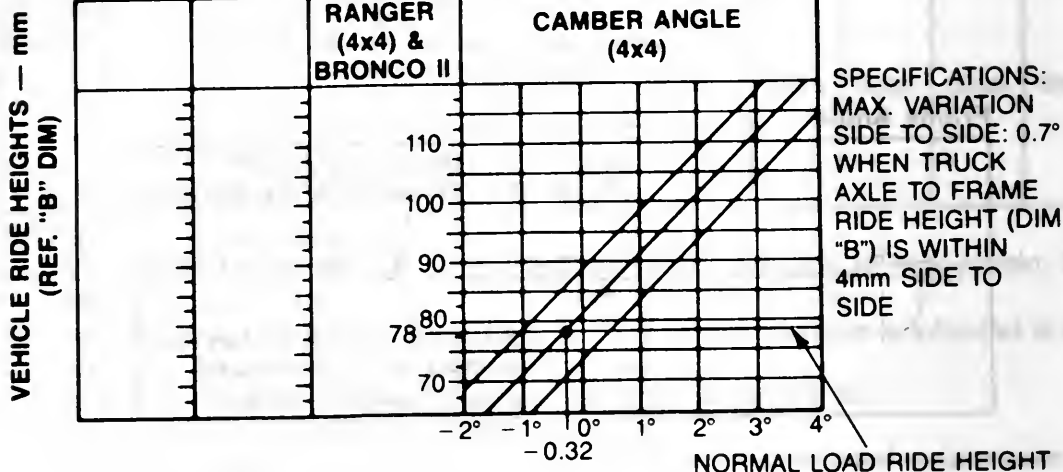


ALIGNMENT SPECIFICATIONS — RANGER (4x4) — CONT'D

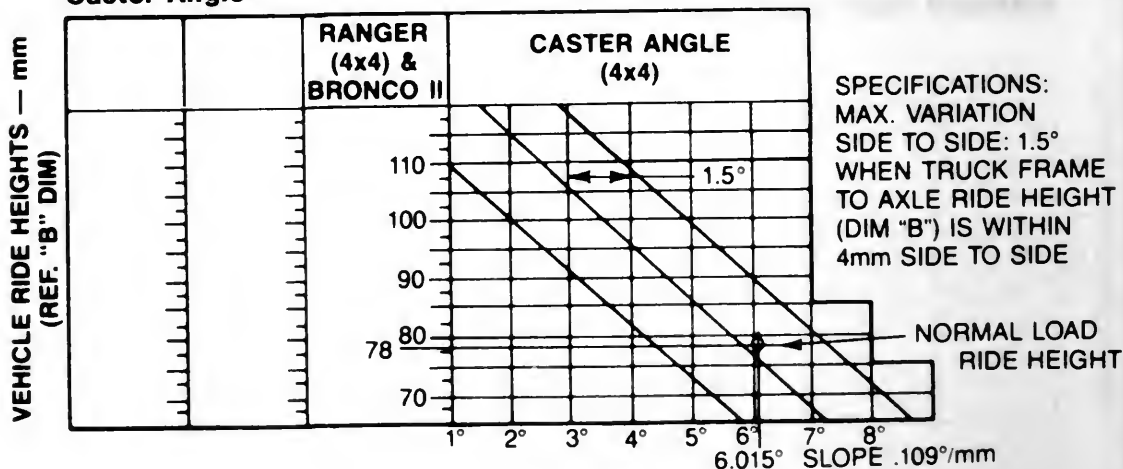
Ride Height Measurement



Camber Angle



Caster Angle



Chassis — Suspension — Front

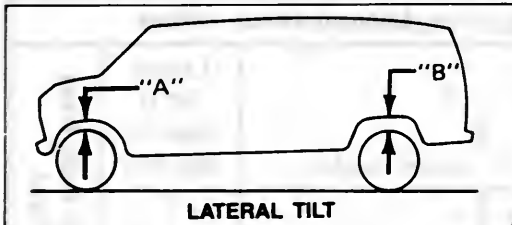
ALIGNMENT SPECIFICATIONS — E-150-350

Model	King Pin Inclination (Nominal)	Toe-In Specifications				Standard Vehicle Attitude				
		Preferred Setting	Checking Range		Dimension "C" for Toe Setting	Design Heights		Lateral Tilt(1) (Side to Side Dif.)		Dog-Track Centerline of Front Tread to Centerline of Rear Tread
			Min.	Max.		"F"	"R"	"A"	"B"	
E-150	7-1/2°	1/32" in	3/32" out	5/32" in	5.00	5.18	5.33	1/2"	1/2"	1-1/4"
E-250	8°	1/32" in	3/32" out	5/32" in	5.00	6.68	6.75—VAN 6.25—BUS	1/2"	1/2"	1-1/4"
							7.25—Cutaway			
E-350	8°	1/32" in	3/32" out	5/32" in	5.00	6.68	7.47—ALL 138 inch W.B. except 10,000— Cutaway	1/2"	1/2"	1-1/4"
							7.97 138 inch W.B. Cutaway 10,000—All 158 W.B.			

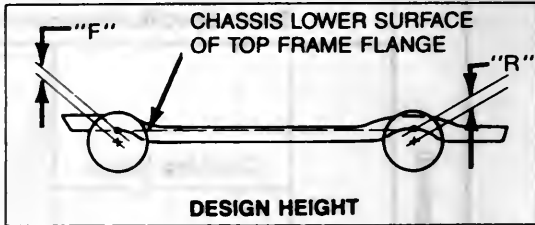
NOTES:

- (1) Lateral tilt spec's are max. allowable for:
Vehicle at curb weight without occupants.
Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
- (2) Measured caster angle includes frame angle. Add frame angle to caster if down in front; subtract if up in front.
- (3) Caster and camber depend upon ride height dim. "C" ("C" must be within .125" side to side to use curves).

ALIGNMENT SPECIFICATIONS — E-150-350 — CONT'D

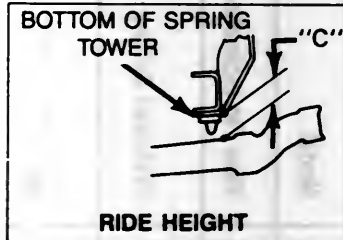
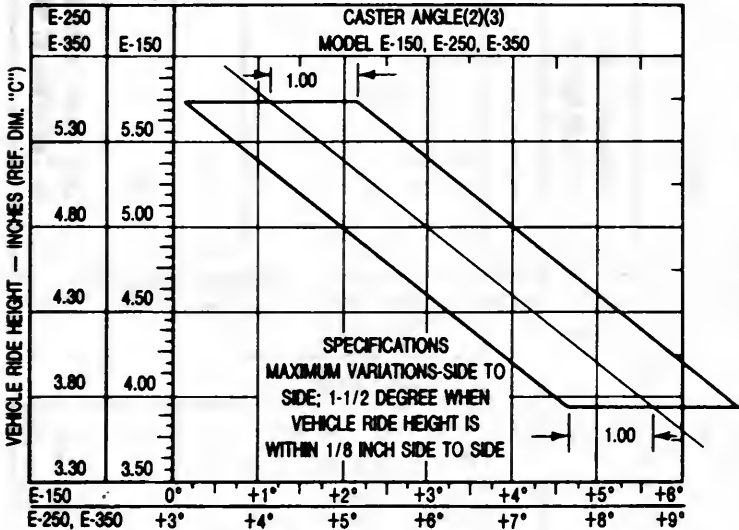


LATERAL TILT



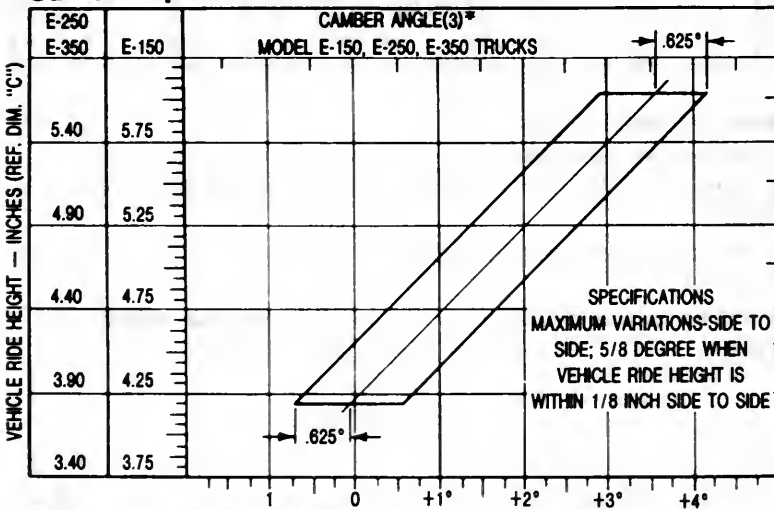
DESIGN HEIGHT

Caster Specifications



RIDE HEIGHT

Camber Specifications



*INCLUDES AXLE AND SPINDLE DEFLECTIONS

NOTES:

- (1) Lateral tilt spec's are max. allowable for:
Vehicle at curb weight without occupants.
Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
- (2) Measured caster angle includes frame angle. Add frame angle to caster if down in front; subtract if up in front.
- (3) Caster and camber depend upon ride height dim. "C" ("C" must be within .125" side to side to use curves).

Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-150 — F-250 — F-350 (4x2), (4x4) AND BRONCO

Truck Model (Axle)	Front Axle Capacity	Alignment Factors	Alignment Specifications				Max. Variation Between Wheels	Standard Vehicle Attitude-Ref.				Remarks
			Nominal	Preferred Setting	Checking Range			Lateral Tilt(3) (Side to Side Height Differences)			Dog-Track	
					Min.	Max.		"D" Front Wheelhouse Opening	"E" Rear Wheelhouse Opening	"G" Rear End of Pickup Box	Centerline of Front Tread to Centerline of Rear Tread	
F-150 (4x2)	2600 lbs.	Caster(4)	—	(2)	(1)	(1)	1.5°	15mm (0.6")	20mm (0.8")	20mm (0.8")	30mm (1.2")	For Caster and Camber at any particular Dimension "A", refer to the Caster and Camber Curves. Dimension "A" must be such that the right is 0-10mm (0.04") less than the left.
		Camber	—	(2)	(1)	(1)	0.7°					
		Toe-in	—	1/32" -IN	3/32" -OUT	5/32" -IN	—					
		King Pin Angle	13°	—	—	—	—					
F-150 (4x2)	3400 lbs.	Caster(4)	—	(2)	(1)	(1)	1.5°	15mm (0.6")	20mm (0.8")	20mm (0.8)	30mm (1.2")	
		Camber	—	(2)	(1)	(1)	0.7°					
		Toe-in	—	1/32" -IN	3/32" -OUT	5/32" -IN	—					
		King Pin Angle	13°	—	—	—	—					
F-250/ 350 (4x2)	3850 lbs.	Caster(4)	—	(5)	(2)	(2)	—	15mm (0.6")	20mm (0.8")	15mm (0.6")	30mm (1.2")	
		Camber	—	(5)	(2)	(2)	—					
		Toe-in	—	3/32" -IN	1/32" -OUT	7/32" -IN	—					
		King Pin Angle	8°	—	—	—	—					
Bronco, F-150 (4x4)	3550 lbs.	Caster(4)	—	(2)	(1)	(1)	1.5°	15mm (0.6")	20mm (0.8")	20mm (0.8")	30mm (1.2")	Ride Height (Dimension "B") must be within 4mm (0.1") side to side to use Caster and Camber Curves.
		Camber	—	(2)	(1)	(1)	0.7°					
		Toe-in	—	1/32" -IN	3/32" -OUT	5/32" -IN	—					
		King Pin Angle	13°	—	—	—	—					

Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-150 — F-250 — F-350 (4x2), (4x4) AND BRONCO — CONT'D

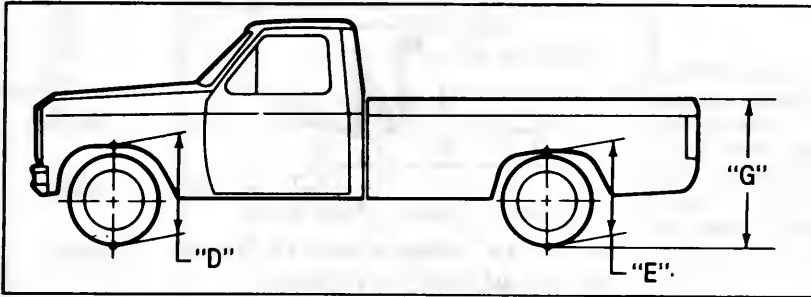
Truck Model (Axle)	Front Axle Capacity	Alignment Factors	Alignment Specifications				Max. Variation Between Wheels	Standard Vehicle Attitude-Ref.				Remarks
			Nominal	Preferred Setting	Checking Range			Lateral Tilt(3) (Side to Side Height Differences)		Dog-Track		
					Min.	Max.		"D" Front Wheelhouse Opening	"E" Rear Wheelhouse Opening		"G" Rear End of Pickup Box	
F-250, F-350 (4x4)	3800 lbs. 4500 lbs.	Caster(4)	—	(2)	(1)	(1)	1.5°	15mm (0.6")	20mm (0.8")	20mm (0.8")	30mm (1.2")	Ride Height (Dimension "C") must be within 4mm (0.1") side to side to use Caster and Camber Curves.
		Camber	—	(2)	(1)	(1)	0.7°					
		Toe-in	—	1/32" -IN	3/32" -OUT	5/32" -IN	—					
		King Pin Angle	13°	—	—	—	—					

NOTES:

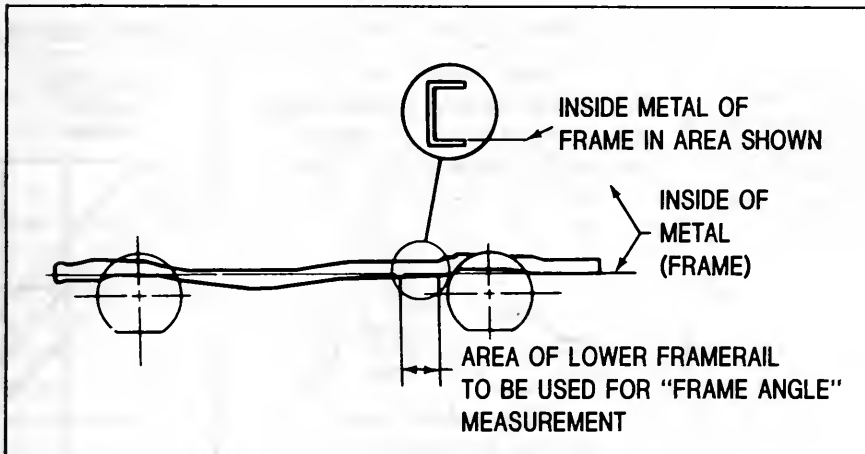
- (1) See Caster/Camber curves. Caster/Camber setting depends on ride height.
- (2) Caster/Camber values are determined by ride height. Camber is adjustable in service only.
- (3) Lateral vehicle tilt specifications are maximum allowable for:
 - Vehicle at curb weight without occupants.
 - Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
- (4) Caster angle includes frame angle — add frame angle to caster if down in front. Subtract frame angle from caster if up in front.

ALIGNMENT SPECIFICATIONS — F-150 — F-250 — F-350 (4x2), (4x4), BRONCO — CONT'D

Lateral Height

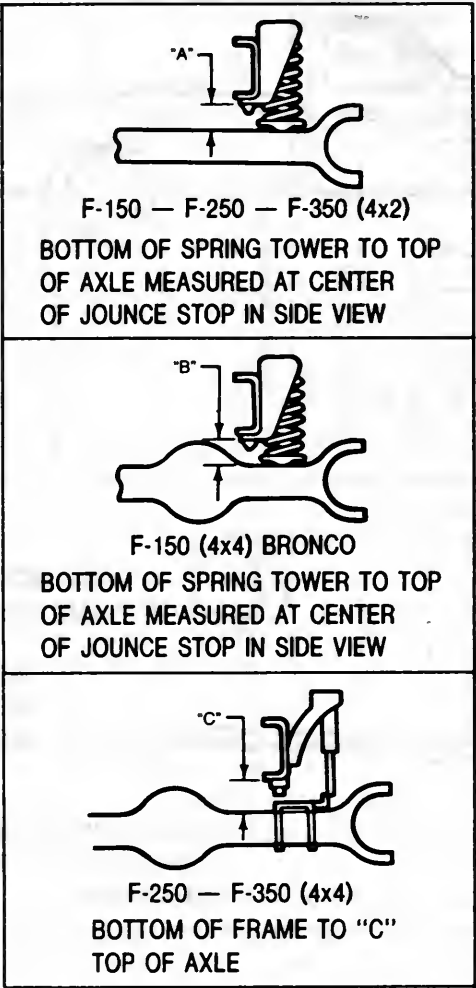


Dog-Track

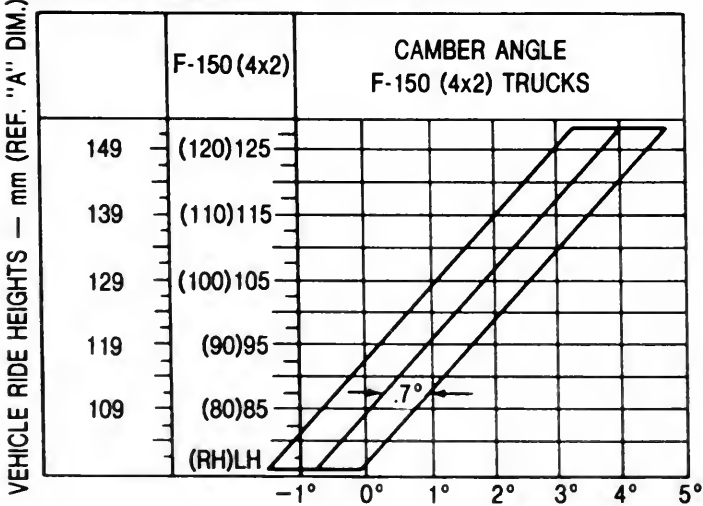


ALIGNMENT SPECIFICATIONS — F-150 — F-250 — F-350 (4x2), (4x4),
BRONCO — CONT'D

Ride Height



Camber Angles — F-150 (4x2)

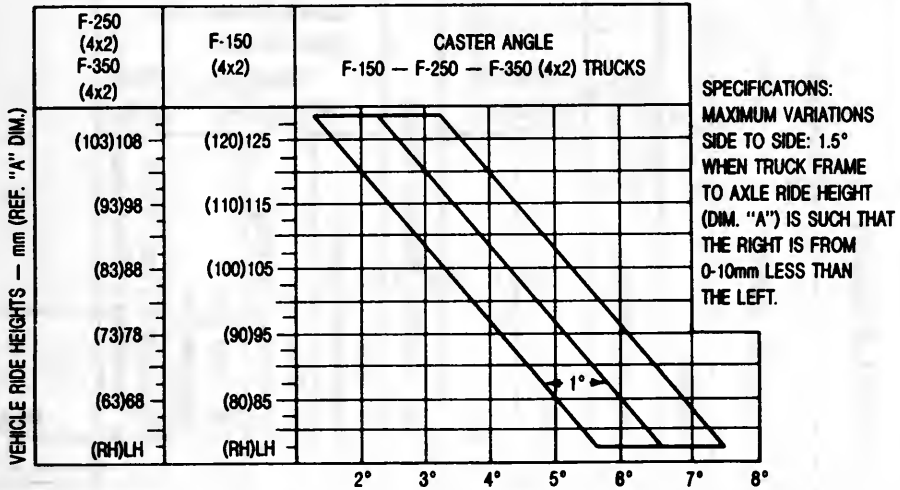


SPECIFICATIONS:
MAXIMUM VARIATIONS
SIDE TO SIDE: .7° WHEN
TRUCK AXLE TO FRAME
RIDE HEIGHT (DIM. "A")
IS SUCH THAT THE
RIGHT IS FROM 0-10mm
LESS THAN THE LEFT.

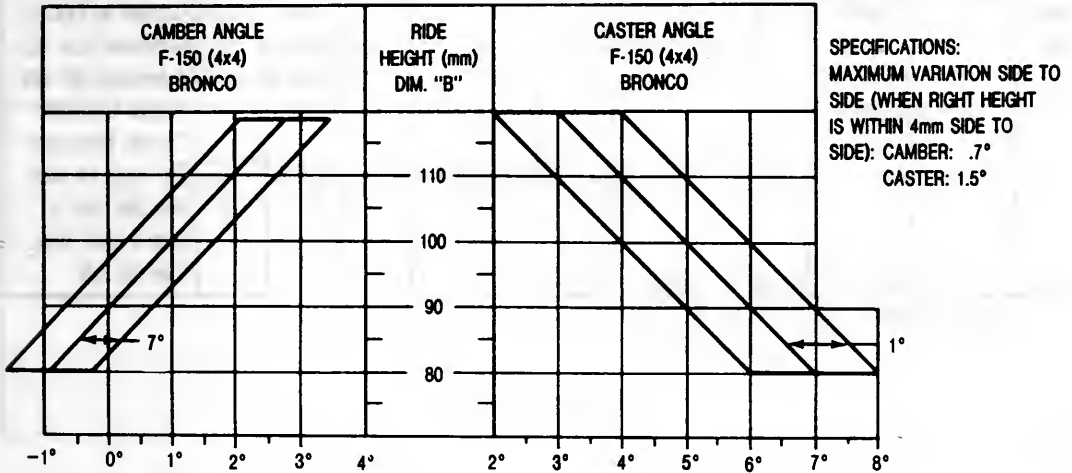
Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-150 (4x2), F-150-350 (4x4), BRONCO — CONT'D

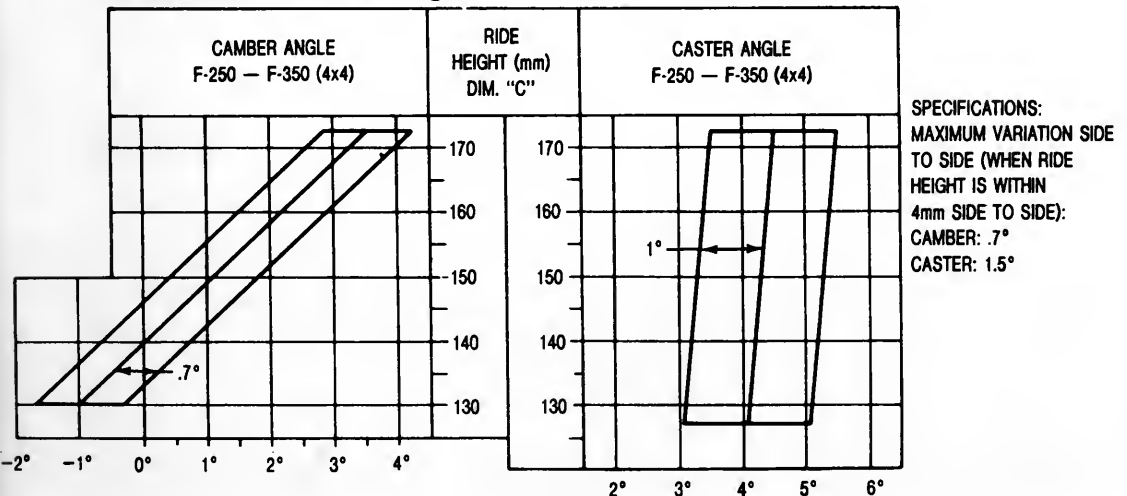
Caster Angles — F-150 (4x2)



Caster and Camber Angles — F-150 (4x4) Bronco



Caster and Camber Angles — F-250 — F-350 (4x4)

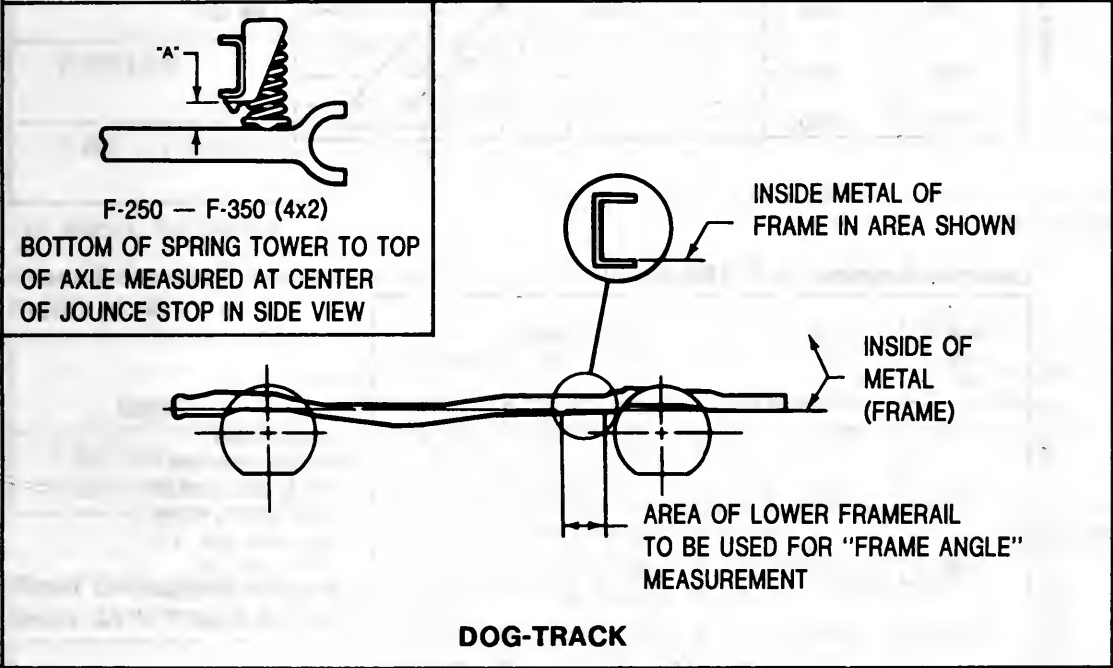
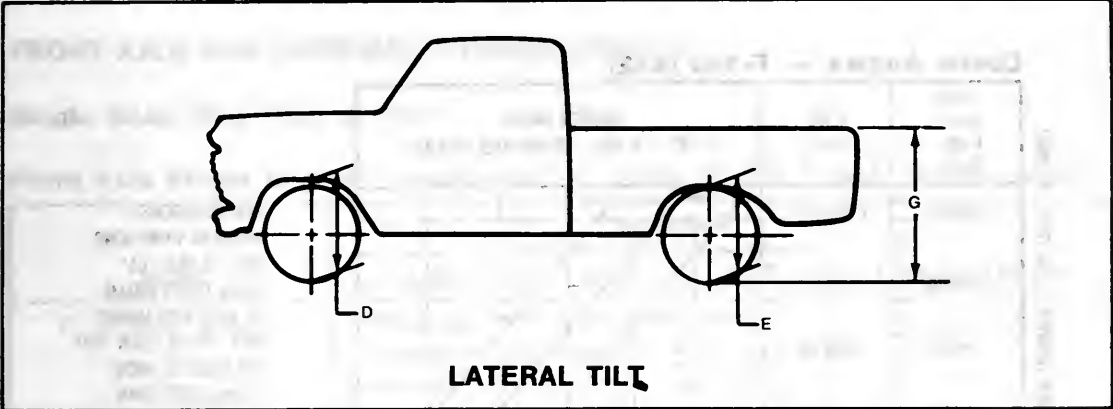


Chassis — Suspension — Front

ALIGNMENT SPECIFICATIONS — F-250/350 (4x2)

Model	Front Axle Capacity	Alignment Factors	Alignment Specifications				Max. Variation Between Wheels	Standard Vehicle Attitude-Ref.				Remarks
			Nominal	Preferred Setting	Checking Range			Lateral Tilt (4) (Side to Side Height Differences)			Dog-Track	
					Min.	Max.		"D" Front Wheelhouse Opening	"E" Rear Wheelhouse Opening	"G" Rear End of Pickup Box		
F-250— F-350 (4x2)	3850 lbs.	Caster(5) Camber Toe In King Pin Angle	8°	(1) (1) 3/32" in	(2) (2) 1/32" out	(2) (2) 7/32" in	1.5° 0.7°	15mm	20mm	15mm at Frame Side-rail	30mm	For Caster & Camber at any particular dimension "A" see Caster & Camber Curves. Dimension "A" must be such that the right is 5mm (-5mm) less than the left.

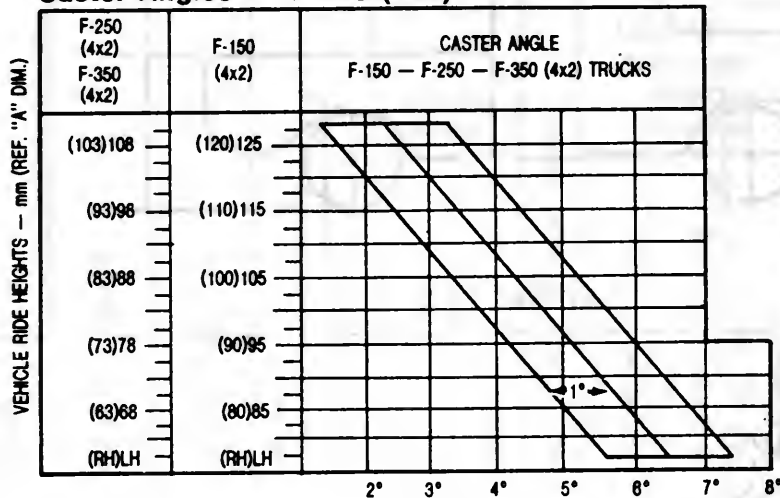
ALIGNMENT SPECIFICATIONS — F-250/350 (4x2)



Chassis — Suspension — Front

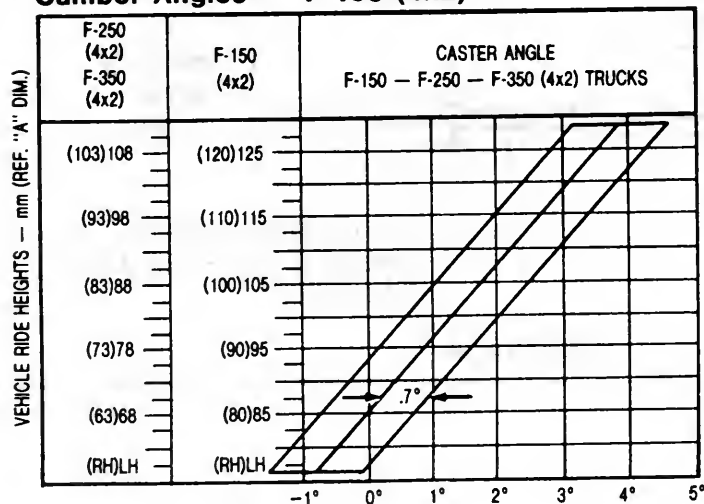
ALIGNMENT SPECIFICATIONS — F-250/350 (4x2) — CONT'D

Caster Angles — F-150 (4x2)



SPECIFICATIONS:
MAXIMUM VARIATIONS
SIDE TO SIDE: 1.5°
WHEN TRUCK FRAME
TO AXLE RIDE HEIGHT
(DIM. "A") IS SUCH THAT
THE RIGHT IS FROM
0-10mm LESS THAN
THE LEFT.

Camber Angles — F-150 (4x2)



SPECIFICATIONS:
MAXIMUM VARIATIONS
SIDE TO SIDE: .7° WHEN
TRUCK AXLE TO FRAME
RIDE HEIGHT (DIM. "A")
IS SUCH THAT THE
RIGHT IS FROM 0-10mm
LESS THAN THE LEFT.

NOTES:

- (1) King Pin Angle
Caster & Camber are not adjustable.
- (2) See Caster/Camber Curves. Caster/Camber setting depends on ride height.
- (3) Caster & King Pin angle are not adjustable. Camber depends on ride height.
- (4) Lateral vehicle tilt specifications are maximum allowable for:
 - Vehicle at curb weight without occupants.
 - Vehicle loaded (not exceeding GVW) with equally distributed weight over the cargo and occupant areas.
- (5) Caster angle includes frame angle — add frame angle to caster if down in front; subtract frame angle from caster if up in front.

Chassis — Suspension — Front

SERVICE SPECIFICATIONS

FRONT AXLE AND DRIVESHAFT PINION ANGLES

Single Snap Ring Type U-Joint

Front Axle Pinion Angles to Horizontal — F-150, F-250, F-350, Bronco (4x4)

Model	Axle	Wheelbase		Curb Load Empty
		MM	Inch	
F-150 (4x4), Bronco	Dana 44 IFS	2260	104	2-3/4° (1)
		2967	117	
		3378	133	
		3937	155	
F-250 (4x4)	Dana 44 IFSHD	3378	133	6-3/4° (1)
		3937	155	
F-250 — F-350 (4x4)	Dana 50 IFS	3378	133	6-3/4° (1)

(1) Above horizontal.

CE3918-2C

Front Driveshaft Angles to Horizontal Dana 50 IFS Front Drive Axle — F-350 (4x4)

Model	Wheelbase		Engine	Transmission	Curb Load Empty
	MM	Inch			
F-350 (4x4) F-250 H.D. (4x4)	3378	133	All	All	2-1/2°

CE3919-2C

Front Driveshaft Angles to Horizontal — F-150, F-250, Bronco (4x4) Dana 44 IFS and 44 IFSHD Axle

Model	Wheelbase		Engine	Transmission	Curb Load Empty
	MM	Inch			
F-150 (4x4) Bronco	2260	104	All	All	1/4°
	2967	117			
	3378	133			
	3937	155			
F-250 (4x4) LD	3378	133	All	All	2-3/4°
	3937	155			

Driveline Angle — Front

Model	Wheelbase	Engine	Transmission	Driveshaft Angle	Pinion Angle
Ranger (4x4) and Bronco II	All	All	C5/4-Speed	2.8°	4.4°
			5-Speed	3.6°	4.4°

Chassis — Suspension — Front

TORQUE SPECIFICATIONS

Ranger (4x2)

Description	Torque Specs.	
	N-m	Ft-Lb
Axle Arm to Bracket Nut	163-203	120-150
Axle Arm Bracket to Frame Nut	95-125	70-92
Bumper to Spring Seat Bolt	18-25	13-18
Front Shock Absorber to Radius Arm Nut	66-92	48-68
Front Shock Absorber to Spring Seat Nut	34-47	25-35
Pitman Arm to Drag Link Nut	68-102	51-75
Radius Arm to Frame Nut	109-163	81-120
Radius Arm Bracket to Frame Bolt	104-152	77-110
Radius Arm Bracket Connecting Bolts	47-68	35-50
Stabilizer Bar to Mounting Bracket Bolt	47-68	35-50
Stabilizer Bar to Radius Arm Nut	65-88	48-64
Tie Rod Adjusting Sleeve	40-57	30-42
Tie Rod to Spindle Nut	68-102	51-75
Lower Ball Joint Stud Nut	141-198	104-146
Upper Ball Joint Stud Nut	115-150	85-110

Chassis — Suspension — Front

TORQUE SPECIFICATIONS — CONT'D

F-150-350, E-150-350 (4x2)

Description	F-150 (4x2)		F-250 — F-350 (4x2)		E-150 — E-250 — E-350	
	N-m	Ft-Lbs	N-m	Ft-Lbs	N-m	Ft-Lbs
Jounce Bumper to Frame Bolt	19-29	14-22	19-29	14-22	—	—
Lock Pin to Spindle Nut	—	—	52-84	38-62	52-84	38-62
Radius Arm to Rear Bracket Nut	109-162	80-120	109-162	80-120	109-162	80-120
Radius Arm Rear Bracket to Frame Bolt	105-135	77-100	105-135	77-100	102-142	75-105
Shock Absorber to Lower Bracket Nut and Bolt	55-81	40-60	55-81	40-60	55-81	40-60
Shock Absorber to Upper Spring Seat Nut	34-47	25-35	21-33	15-25	25-37	18-28
Shock Absorber Bracket to Radius Arm Nut and Bolt	37-50	27-37	37-50	27-37	95-128	70-95
Spindle Pin Plug to Spindle Nut	—	—	48-67	35-50	48-67	35-50
Stabilizer Bar Link to Bracket	71-100	52-74	71-100	52-74	55-81	40-60
Stabilizer Bar Link to Stabilizer Bar	71-100	52-74	71-100	52-74	25-37	18-28
Stabilizer Bar Retainer to Frame Crossmember Mounting Bracket	37-50	27-37	37-50	27-37	21-33	15-25
Steering Linkage to Spindle Nut	94-135	70-100	94-135	70-100	94-135	70-100

Chassis — Suspension — Front

TORQUE SPECIFICATIONS — CONT'D

Ranger (4x4)

Description	Torque Limits	
	N-m	(ft-lb)
Axle Pivot Bolt	163-203	120-150
Jounce Bumper Bolt	15-25	11-19
Radius Arm to Rear Bracket Nut	109-162	80-120
Radius Arm Front Bracket and Axle Stud	217-298	160-220
Radius Arm Front Bracket Front Bolts	37-50	27-37
Radius Arm Front Bracket Lower Bolts	217-298	160-220
Shock Absorber to Radius Arm Nut and Bolt	57-97	42-72
Shock Absorber to Upper Seat	34-47	25-35
Spring Retainer Nut	95-135	70-100
Stabilizer Bar Retainer Bolts	104-150	77-110
Stabilizer Bar U-Bolt Nuts	66-92	48-68

TORQUE SPECIFICATIONS (CONT'D)

F-150-350 (4x4), Bronco

Description	Torque	
	(ft-lb)	N-m
Front Spring to Axle U-Bolt — F-250/F-350 (4x4)	85-120	115-163
Front Spring Assembly to Hanger Bracket — F-250/F-350 (4x4)	120-150	163-203
Front Spring Shackle to Shackle Bracket and Spring — F-250/F-350 (4x4)	150-210	203-285
Front Spring to Shackle — F-250/F-350 (4x4)	120-150	163-203
Radius Arm to Bracket — Bronco, F-150 (4x4)	80-100	109-134
Spring Retainer to Upper Spring Seat — Bronco, F-150 (4x4)	Screw 13-18	18-24
Lower Spring Retainer to Radius Arm — Bronco, F-150 (4x4)	70-100	94-134
Front Shock Bracket to Frame — F-250/F-350 (4x4)	52-74	55-81
Front Shock to Shock Bracket — Lower — Bronco, F-150 (4x4)	40-60	55-81
Front Shock Absorber Stud — Upper — Bronco, F-150 (4x4) F-250/F-350 (4x4)	25-35	34-37
Front Shock to Front Spring Plate Spacer — F-250/F-350 (4x4)	52-74	71-100
Front Shock to Bracket — Upper — Bronco, F-150 (4x4)	25-35	34-37
Front Jounce Bumper to Bumper Bracket — F-250/F-350 (4x4)	19-30	26-41
Bumper Bracket to Frame — F-250/F-350 (4x4)	52-74	71-100
Front Jounce Bumper to Upper Spring Seat — Bronco, F-150 (4x4)	13-18	18-24
Radius Arm Pivot Bracket to Frame — Bronco, F-150 (4x4)	77-110	104-149
Stabilizer Bar Link to Bracket — Bronco, F-150 (4x4)	52-74	71-100
Stabilizer Bar Link to Stabilizer Bar — Bronco, F-150 (4x4)	52-74	71-100
Stabilizer Bar Retainer to Bracket and Bracket to Frame — Bronco, F-150 (4x4) — Sno-Fiter	27-37	37-50
Stabilizer Bar Bracket to Bracket — F-150 (4x4) SuperCab	27-37	37-50
Stabilizer Bar Retainer to Frame — F-150 (4x4) SuperCab	52-74	71-100
Stabilizer Bar Retainer to Crossmember and Mounting Bracket — F-150 (4x4) Regular Cab	27-37	37-50
Axle Pivot Bracket to Frame — F-150 (4x4) Bronco	77-110	104-149
Axle Pivot Bracket to Frame — F-250/F-350 (4x4) Bronco	77-110	104-149

Chassis — Suspension — Front

VEHICLE HEIGHT DATA

Ranger, Bronco II

Model	Wheelbase mm(in.)	Body Style	GVWR Kg. (Lbs.)	"F" Height @ Front Wheel Δ	
				Loaded Height @ Spring Rating mm(in.)	Height at Base Curb Wt. mm(in.)
Ranger Reg. Cab 4x2	2740(107.9)	P/U	1714(3780)	367(14.47)	392(15.45)
			1986(4380)	379(14.92)	404(15.89)
	2892(113.9)	P/U	1724(3800)	367(14.47)	392(15.44)
			2004(4420)	379(14.92)	403(15.88)
Ranger Reg. Cab 4x2	2740(107.9)	P/U	1814(4000)	449(17.68)	469(18.48)
			2005(4420)	450(17.71)	470(18.50)
	2892(113.9)	P/U	1832(4040)	449(17.68)	474(18.65)
			2032(4480)	450(17.71)	474(18.68)
Ranger Reg. Cab 4x2	2892(113.9)	Chassis Cab	1932(4260)	374(14.73)	395(15.58)
			2213(4880)	379(14.92)	405(15.94)
Bronco II 4x4	2388(94.0)	4 Pass.	1787(8940)	449(17.68)	468(18.44)
			1941(4280)	449(17.68)	478(18.82)

Note: All vehicle height dimensions shown are from ground to "Frame Datum Line."
 Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Model	"R" Height @ Rear Axle Δ		"LH" Height From Ground @ End of Frame (Standard Springs) Δ mm(in.)		"CH" Overall Height of Vehicle (Standard Springs) Δ mm(in.)	
	Loaded Height @ Spring Rating mm(in.)	Height At Base Curb Wt. mm(in.)				
			Empty	Loaded	Empty	Loaded
Ranger Reg. Cab 4x2	362(14.47)	462(18.17)	486(19.06)	361(14.21)	1627(64.05)	1565(61.61)
	374(14.72)	480(18.91)	505(19.88)	372(14.66)	1642(64.64)	1576(62.06)
	362(14.27)	459(18.06)	483(19.00)	361(14.20)	1624(63.92)	1565(61.62)
	374(14.27)	478(18.81)	505(19.86)	372(14.65)	1639(64.51)	1577(62.07)
Ranger Reg. Cab 4x4	445(17.52)	541(21.28)	564(22.19)	444(17.47)	1705(67.12)	1647(64.84)
	448(17.55)	547(21.52)	571(22.49)	444(17.50)	1708(67.25)	1647(64.87)
	445(17.52)	537(21.16)	560(22.06)	444(17.46)	1704(67.08)	1647(64.85)
	446(17.55)	543(21.39)	568(22.36)	444(17.49)	1707(67.21)	1648(64.88)
Ranger Reg. Cab 4x2	369(14.53)	493(19.41)	528(20.78)	372(14.46)	1642(64.64)	1572(61.88)
	374(14.72)	473(18.64)	498(19.61)	372(14.65)	1637(64.46)	1577(62.07)
Bronco II 4x4	445(17.52)	498(19.61)	541(20.02)	443(17.46)	1732(68.19)	1685(66.34)
	445(17.52)	509(20.02)	520(20.48)	443(17.46)	1743(68.60)	1685(66.34)

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F150-350, Bronco

Model	Wheelbase mm(in.)	Body Style	GVWR Kg. (Lbs.)	"F" Height @ Front WheelΔ		
				Loaded Height @ Spring Rating mm(in.)	Height at Base Curb Wt. mm(in.)	
					Std. Spring	H.D. Spring
Bronco 4x4	2660(104.7)	2 & 3 Pass.	2427(5350)	488(19.20)	507(20.00)	—
F-150 Reg. Cab 4x2	2967(116.8)	P/U	2381(5250)	416(16.37)	437(17.19)	462(18.20)
	3378(133.0)	P/U	2766(6100)	416(16.37)	451(17.74)	483(19.02)
F-150 Reg. Cab 4x2	2967(116.8)	P/U	2178(4800) 2381(5250)	424(16.69) 437(17.19)	438(17.24) 452(17.80)	449(17.69) 463(18.25)
	3526(138.8)	P/U	2744(6050)	451(17.74)	474(18.64)	480(18.90)
F-150 Super Cab 4x2	3937(155.0)	P/U	2834(6250)	451(16.87)	481(18.92)	485(19.11)
	3937(155.0)	P/U	2834(6250)	451(16.87)	481(18.92)	485(19.11)
F-150 Reg. Cab 4x4	2967(116.8)	P/U	2540(5600)	502(19.79)	536(21.11)	542(21.33)
	3378(133.0)	P/U	2540(5600)	502(19.79)	530(20.90)	537(21.14)
F-150☆ Reg. Cab 4x4	2967(116.8)	P/U	2510(5600)	503(19.79)	536(21.09)	541(21.31)
F-150 Super Cab 4x4	3937(155.0)	P/U	2925(6450)	502(19.79)	529(20.83)	535(21.06)
F-250 Reg. Cab 4x4	3378(133.0)	P/U	2855(6300)	506(19.93)	534(21.03)	540(21.25)

Note: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

† Auxiliary springs.

☆ Flareside pickup.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350, Bronco — Cont'd

Model	Loaded Height @ Spring Rating mm(in.)	At Base Curb Weight mm(in.)		Δ† "LH" Height From Ground Standard Springs mm(in.)		Δ "CH" Overall Vehicle Standard Springs mm(in.)	
	Std. Spring	Std. Spring	H.D. Spring	Empty	Loaded	Empty	Loaded
Bronco 4x4	480 (18.89)	531 (20.92)	—	779 (30.66)	708 (27.87)	1851 (72.87)	1812 (71.32)
F150 Reg. Cab 4x2	442 (17.39)	522 (20.57)	554 (21.79)	547 (21.55)	434 (17.64)	1780 (70.07)	1732 (68.20)
	465 (18.33)	565 (22.65)	567 (22.34)	592 (23.31)	470 (18.51)	1809 (71.21)	1750 (68.91)
F-150☆ Reg. Cab 4x2	442 (17.39)	520 (20.47)	550 (21.66)	544 (21.40)	443 (17.46)	1779 (70.05)	1732 (68.20)
F-150 Super Cab 4x2	465 (18.33)	557 (21.94)	561 (22.08)	582 (22.90)	470 (18.51)	1816 (71.51)	1759 (69.24)
	465 (18.33)	556 (21.89)	560 (22.05)	576 (22.76)	470 (18.49)	1815 (71.46)	1758 (69.20)
F-150 Reg. Cab 4x4	508 (19.99)	607 (23.90)	—	630 (24.82)	509 (20.05)	1857 (73.12)	1798 (70.78)
F-150☆ Reg. Cab 4x4	508 (19.99)	608 (23.95)	605 (23.80)	633 (24.93)	509 (20.06)	1864 (73.38)	1798 (70.79)
F-150 Super Cab 4x4	508 (19.99)	598 (23.54)	600 (23.62)	616 (24.25)	509 (20.01)	1861 (73.25)	1805 (71.07)
F-250 Reg. Cab 4x2	498 (19.62)	611 (24.06)	616 (24.24)	634 (24.98)	496 (19.52)	1861 (73.28)	1796 (70.70)
Heavy Duty F-250 Reg. Cab 4x2	532 (20.95)	639 (25.15)	—	665 (26.20)	535 (21.07)	1883 (74.15)	1819 (71.63)

☆ Flareside Pickup

† Height from ground to top of open tailgate (with Bronco only).

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350 — Cont'd

Model	Wheelbase mm(in.)	Body Style	GVWR Kg. (Lbs.)	"F" Height @ Front WheelΔ		
				Loaded Height @ Spring Rating mm(in.)	Height at Base Curb Wt. mm(in.)	
					Std. Spring	H.D. Spring
Heavy-Duty F-250 Reg. Cab 4x2	3378(133.0)	P/U	3900(8600)	522(20.55)	552(21.75)	557(21.92)
Heavy-Duty F-250 SuperCab 4x2	3937(155.0)	P/U	3993(8800)	525(20.65)	553(21.75)	557(21.94)
F-250 Reg. Cab 4x4	3378(133.0)	P/U	2993(6600)	575(22.65)	608(24.00)	610(24.05)
Heavy-Duty F-250 Reg. Cab 4x4	3378(133.0)	P/U	3900(8600)	594(23.37)	622(24.50)	626(24.64)
Heavy-Duty F-250 SuperCab 4x4	3937(155.0)	P/U	3900(8600)	593(23.37)	624(24.57)	—
F-250 Reg. Cab 4x2	3378(133.0)	Chassis Cab	2948(6500)	506(19.93)	534(21.01)	539(21.22)
Heavy-Duty F-250 Reg. Cab 4x2	3378(133.0)	Chassis Cab	3900(8600)	525(20.65)	553(21.77)	558(21.98)

NOTE: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

● To obtain ground to top of pickup box floor beads dimension at rear of box, add 197(7.76) for styleside pickup and 221(8.70) for flareside pickup rear vehicle heights.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350 — Cont'd

Model	Loaded Height @ Spring Rating mm(in.)	Height At Base Curb Wt. mm(in.)		“LH” Height From Ground @ End of Frame (Std. Springs) Δ mm(in.)		“CH” Overall Height of Vehicle (Std. Springs) mm(in.)	
	Std. Spring	Std. Spring	H.D. Spring	Empty	Loaded	Empty	Loaded
Heavy-Duty F-250 SuperCab 4x2	535 (21.05)	636 (25.04)	627 (24.68)	658 (25.99)	537 (21.15)	1891 (74.44)	1829 (72.03)
F-250 Reg. Cab 4x4	550 (21.67)	659 (25.93)	665 (26.17)	674 (26.54)	543 (21.37)	1923 (75.73)	1857 (73.12)
Heavy-Duty F-250 Reg. Cab 4x4	586 (23.06)	696 (27.40)	690 (27.17)	718 (28.28)	583 (22.96)	1948 (76.68)	1883 (74.14)
Heavy-Duty F-250 SuperCab 4x4	586 (23.06)	689 (27.14)	685 (26.96)	706 (27.81)	584 (22.97)	1954 (76.93)	1890 (74.42)
F-250 Reg. Cab 4x2	498 (19.62)	631 (24.85)	634 (24.95)	661 (26.01)	496 (19.52)	1870 (73.62)	1796 (70.70)
Heavy-Duty F-250 Reg. Cab 4x2	547 (21.56)	619 (24.37)	—	635 (25.00)	554 (21.82)	1879 (73.99)	1827 (71.95)

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350 — Cont'd

Model	Wheelbase mm(in.)	Body Style	GVWR Kg. (Lbs.)	"F" Height @ Front Wheel Δ		
				Loaded Height @ Spring Rating mm(in.)	Height at Base Curb Wt. mm(in.)	
				Std. Spring	Std. Spring	H.D. Spring
Heavy-Duty F-250 Reg. Cab 4x2	3475(136.8) 4085(160.8)	Chassis Cab	3900(8600) 4080(9000)	525(20.65) 525(20.65)	562(22.13) 563(22.15)	— —
Heavy-Duty F-250 Reg. Cab 4x4	3378(133.0)	Chassis Cab	3900(8600)	594(23.37)	624(24.55)	627(24.68)
F-350 Reg. Cab 4x2	3378(133.0)	P/U	3945(8700) 4535(10,000)	522(20.54) 503(19.82)	550(21.65) 530(20.86)	555(21.85) 535(21.28)
F-350 Crew Cab 4x2	4278(168.4)	P/U	3946(8700) 4173(9200)	522(20.54) 522(20.54)	552(21.73) 552(21.73)	557(21.95) 557(21.95)
F-350 Reg. Cab 4x4	3378(133.0)	P/U	4082(9000)	594(23.37)	623(24.51)	—
F-350 Crew Cab 4x4	4278(168.4)	P/U	4218(9300)	594(23.37)	621(24.46)	—
F-350 Reg. Cab 4x2	3475(136.8) 4085(160.8)	Chassis Cab Chassis Cab	4037(8900) 4990(11,000) 4535(10,000) 4990(11,000)	522(20.54) 503(19.82) 503(19.82) 503(19.82)	553(21.79) 539(21.23) 543(21.36) 537(21.14)	558(21.96) 543(21.38) 546(21.50) 541(21.29)
F-350 Reg. Cab 4x4	3378(133.0)	Chassis Cab	4082(9000)	594(23.37)	622(24.51)	—

NOTE: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

F-150-350 — Cont'd

Model	"R" Height @ Rear AxleΔ			"LH" Height From Ground @ End of Frame (Std. Springs) Δ mm(in.)		"CH" Overall Height of Vehicle (Std. Springs) Δ mm(in.)	
	Loaded Height @ Spring Rating mm(in.)	Height At Base Curb WL mm(in.)					
	Std. Spring	Std. Spring	H.D. Spring	Empty	Loaded	Empty	Loaded
Heavy-Duty F-250 Reg. Cab 4x2	548(21.56)	619(24.37)	—	635(25.00)	554(21.82)	1879(73.99)	1827(71.95)
	548(21.56)	618(24.33)	—	631(24.86)	553(21.78)	1876(73.85)	1826(71.89)
Heavy-Duty F-250 Reg. Cab 4x4	586(23.06)	709(27.92)	701(27.60)	735(28.95)	583(22.96)	1954(76.94)	1883(74.14)
F-350 Reg. Cab 4x2	535(21.05)	642(25.26)	632(24.87)	670(26.36)	539(21.20)	1883(74.15)	1820(71.67)
	516(20.33)	619(24.36)	609(23.99)	646(25.43)	520(20.48)	1862(73.31)	1802(70.95)
F-350 Crew Cab 4x2	535(21.05)	636(25.04)	—	656(25.83)	538(21.17)	1894(74.57)	1839(72.41)
	535(21.05)	635(25.02)	—	656(25.81)	538(21.17)	1894(74.57)	1839(72.41)
F-350 Reg. Cab 4x4	585(23.02)	702(27.62)	691(27.22)	726(28.57)	582(22.91)	1950(76.79)	1883(74.12)
F-350 Crew Cab 4x4	586(23.06)	686(27.01)	—	702(27.62)	584(22.98)	1957(77.04)	1904(74.95)
F-350 Reg. Cab 4x2	548(21.56)	619(24.37)	—	637(25.10)	555(21.85)	1875(73.80)	1826(71.88)
	530(20.88)	634(24.95)	—	660(26.00)	538(21.18)	1873(73.73)	1808(71.18)
	530(20.88)	634(24.96)	—	660(25.98)	538(21.18)	1874(73.81)	1808(71.18)
	530(20.88)	633(24.92)	—	656(25.83)	537(21.13)	1865(73.42)	1806(71.11)
F-350 Reg. Cab 4x4	584(23.02)	702(27.62)	691(27.22)	725(28.57)	582(22.91)	1950(76.79)	1883(74.12)

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350

Model	Wheelbase	GVWR	"F" Height @ Front Wheel Δ		
			Loaded Height @ Spring Rating	Height at Base Curb Wt.	
				Std. Spring	H.D. Spring
E-150 Van	124	5250	21.51	23.42	23.71
	138	6350	22.30	24.46	24.72
		5900	22.03	23.98	24.27
E-150 SuperVan	138	6050	22.30	24.42	24.70
E-250 Van	138	6750	24.14	26.40	26.62
E-250 SuperVan	138	7900	24.82	26.83	27.04
E-350 Van	138	8750	25.42	27.47	27.98
		9500	25.42	27.91	28.09
E-350 SuperVan	138	9100	25.48	27.71	27.93

NOTE: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

Model	"R" Height @ Rear Axle Δ			"LH" Height From Ground @ End of Frame (Std. Springs) Δ		"CH" Overall Height of Vehicle (Std. Springs) Δ	
	Loaded Height @ Spring Rating	Height At Base Curb Wt.					
	Std. Spring	Std. Spring	H.D. Spring	Empty	Loaded	Empty	Loaded
E-150 Van	21.91	24.82	26.37	27.46	21.82	73.23	76.69
	22.12	26.97	26.85	27.71	22.09	81.00	77.08
	21.80	26.37	—	27.09	21.82	80.63	76.79
E-150 SuperVan	22.81	26.19	—	26.92	23.02	80.61	77.57
E-250 Van	24.58	28.50	28.54	29.05	24.69	82.84	79.36
E-250 SuperVan	25.29	28.70	—	29.47	25.48	83.09	80.06
E-350 Van	26.27	31.15	—	32.00	26.49	85.19	80.94
E-350 SuperVan	26.33	30.92	—	32.25	26.69	84.96	81.01

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

Model	Wheelbase	GVWR	"F" Height @ Front Wheel Δ		
			Loaded Height @ Spring Rating	Height at Base Curb Wt.	
			Std. Spring	Std. Spring	H.D. Spring
E-150 Wagon	124	6000	22.03	23.68	23.99
		6600	22.30	24.51	24.71
	138	6050	22.03	24.03	24.30
		6600	22.30	24.30	24.56
E-250 Wagon	138	8550	24.92	27.73	27.87
		8800	24.92	27.73	27.73
E-250 Super Wagon	138	8900	24.52	28.57	—
		9300	24.52	27.84	—
E-350 Super Wagon	138	8700	25.23	27.29	27.49
		9400	25.23	27.42	27.62
E-350 Parcel Delivery Van	138	8750	26.34	28.40	28.64
		9700*	25.84	27.94	28.16
	158	10,000*	25.06	27.46	27.46

* Dual rear wheels.

NOTE: All vehicle height dimensions shown are from ground to "Frame Datum Line."

Δ The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

Model	"R" Height @ Rear Axle Δ			"LH" Height From Ground @ End of Frame (Std. Springs) Δ		"CH" Overall Height of Vehicle (Std. Springs) Δ	
	Loaded Height @ Spring Rating	Height At Base Curb Wt.					
	Std. Spring	Std. Spring	H.D. Spring	Empty	Loaded	Empty	Loaded
E-150 Wagon	21.85	26.49	—	27.19	21.80	80.41	76.81
	22.12	26.61	—	27.13	22.07	80.78	77.08
	21.85	26.60	—	27.29	21.80	80.81	76.79
	22.12	26.86	—	27.54	22.07	81.07	77.06
E-250 Wagon	23.75	28.12	—	28.10	23.54	82.58	78.96
	23.75	28.12	—	28.82	23.54	82.38	78.96
E-250 Super Wagon	23.85	28.10	—	28.82	23.54	82.51	78.93
	23.85	27.82	—	28.39	23.54	82.38	78.93
E-350 Super Wagon	25.50	29.83	—	31.01	25.63	84.05	80.09
	25.50	29.62	—	30.64	25.63	83.93	80.49
E-350 Parcel Delivery Van	27.19	31.87	—	32.11	27.62	106.09	103.31
	27.34	30.28	—	31.46	28.10	105.58	103.10
	29.68	29.68	—	30.76	27.22	104.76	102.23

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

Model	Wheelbase	GVWR	"F" Height @ Front Wheel Δ		
			Loaded Height @ Spring Rating	Height at Base Curb Wt.	
				Std. Spring	H.D. Spring
E-350 Commercial Stripped Chassis	138	9550	20.87	23.85	23.68
	158	9800*	21.79	24.56	—
	176	9700 9800*	20.87 21.79	23.75 24.64	— —
E-350 Commercial Cutaway	138	8900 9800*	21.19 19.91	23.20 22.02	23.44 22.25
		10,250*	20.59	22.99	—
	158	9700*	19.91	22.06	22.31
		10,250*	20.59	22.99	—
E-350 R.V. Cutaway	176	10,900*	20.59	22.99	—
	138	10,600*	20.59	22.32	—
	158	9700	25.23	27.90	28.02
		10,250*	24.73	27.12	27.24
	176	11,000*	24.73	26.93	27.08
		10,250*	24.63	26.26	—
		11,000*	24.63	26.34	—

*Dual Rear Wheels

Note: All Vehicle Height Dimensions shown are from Ground to "Frame Datum Line."

Δ — The Height Data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Chassis — Suspension — Front

VEHICLE HEIGHT DATA — CONT'D

E-150-350 — Cont'd

E-150-350 — Cont'd

Model	"R" Height @ Rear Axle Δ			"CH" Overall Height of Vehicle (Standard Springs) Δ	
	Loaded Height @ Spring Rating	Height At Base Curb Wt.			
	Std. Spring	Std. Spring	H.D. Spring	Empty	Loaded
E-350 Commercial Stripped Chassis	21.94	26.19	25.70	73.22	69.99
	23.51	26.25	—	73.73	70.97
	21.94	26.84	25.30	73.05	69.96
E-350 Commercial Cutaway	22.04	27.79	—	79.83	76.16
	21.41	25.74	—	78.33	75.15
	21.95	26.49	—	79.83	75.92
	20.76	26.43	—	78.28	74.84
	21.95	27.53	—	80.03	79.84
	21.95	27.53	—	80.03	79.85
	22.02	25.14	—	77.91	75.72
	26.08	31.58	—	84.12	80.25
E-350 R.V. Cutaway	25.87	30.64	—	82.86	79.87
	25.87	30.57	—	82.73	79.81
	25.87	30.62	—	82.28	79.77
	25.87	30.62	—	82.28	79.77

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE

Ranger, Bronco II

Model	Tire Size	Tread Width		Ground Clearance					
				P		S		T	
		FW	RW	Approach Angle		Ramp Angle		Departure Angle	
		Front	Rear	SWB	LWB	SWB	LWB	SWB	LWB
Ranger 4x2 2740(107.9) 2892(113.9)	P185/75R 14SL	1397 (55.0)	1388 (54.6)	21.8°	21.8°	17.0°	16.7°	17.8°	15.1°(a)
	P195/75R 14SL	1397 (55.0)	1388 (54.6)						
	P205/75R 14SL	1397 (55.0)	1388 (54.6)						
Ranger 4x4 2740(107.9) 2892(113.9)	P195/75R 15SL	1436 (56.5)	1400 (55.1)	29.3°	29.3°	25.0°	22.5°	22.7°	19.3°
	P205/75R 15SL	1436 (56.5)	1400 (55.1)						
Bronco II 4x4 2388(94.0)	P195/75R 15SL	1445 (56.9)	1445 (56.9)	29.5°	—	25.1°	—	24.8°	—
	P205/75R 15SL	1445 (56.9)	1445 (56.9)						

(a) 16.2° with Chassis Cab

(b) Chassis Cab only

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE — CONT'D

F-150-350, Bronco

Model	Tire Size	Tread Width		Ground Clearance					
				P		S		T	
		FW	RW	Approach Angle		Ramp Angle		Departure Angle	
		Front	Rear	SWB	LWB	SWB	LWB	SWB	LWB
Bronco (U-150) 2660(104.7)	P215/75Rx15SL(a)	1654 (65.1)	1636 (64.4)	34.1°	—	20.2°	—	20.6°	—
	P235/75Rx15XL	1654 (65.1)	1636 (64.4)	—	—	—	—	—	—
	10.00R-15	1664 (65.5)	1646 (64.8)	—	—	—	—	—	—
	10.00-15	1664 (65.5)	1646 (64.8)	—	—	—	—	—	—
F-150 4x2 Reg. Cab 2967(116.8) 3378(133.0)	P195/75Rx15SL(a)	1654 (65.1)	1636 (64.4)	28.9°	28.9°	17.9°	15.9°	14.8°(b)	14.8°
	P215/75Rx15SL(a)	1654 (65.1)	1636 (64.4)	—	—	—	—	—	—
	P235/75Rx15XL	1654 (65.1)	1636 (64.4)	—	—	—	—	—	—
F-150 4x2 Super Cab 3526(138.8) 3937(155.0)	P235/75Rx15XL	1654 (65.1)	1636 (64.4)	31.1°	31.2°	17.4°	15.6°	14.0°	14.0°
F-150 4x4 Reg. Cab 2967(116.8) 3378(133.0)	P235/75Rx15XL	1654 (65.1)	1636 (64.4)	35.2°	35.2°	19.4°	17.7°	16.4°	16.4°
	10.00Rx15	1664 (65.5)	1646 (64.8)	—	—	—	—	—	—
	10.00x15	1664 (65.5)	1646 (64.8)	—	—	—	—	—	—
F-150 4x4 Super Cab 3937(155.0)	P235/75Rx15XL	1654 (65.1)	1636 (64.4)	—	35.3°	—	16.1°	—	16.4°
	10.00R-15	1664 (65.5)	1646 (64.8)	—	—	—	—	—	—
	10.00-15	1664 (65.5)	1646 (64.8)	—	—	—	—	—	—
F-250 4x2 Reg. & Chassis Cab 3378(133.0)	LT215/85Rx16(a)	1669 (65.7)	1633 (64.3)	—	37.0°	—	21.3°	—	22.7°(c)
	LT235/85Rx16	1669 (65.7)	1633 (64.3)	—	—	—	—	—	—
	7.50x16(a)	1669 (65.7)	1633 (64.3)	—	—	—	—	—	—

(a) Not Available On All GVWR

(b) 14.6° With Flareside

(c) 12.7° With Chassis Cab

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE — CONT'D

E-150-350

Model	Tire Size	Tread Width		Ground Clearance					
				Approach Angle G		Ramp Angle H		Departure Angle J	
		Front	Rear	124" WB	138" WB	124" WB	138" WB	124" WB	138" WB
		D	E						
E-250 Clubwagon	8.75x16.5 8.75Rx16.5	68.44 68.44	66.00 66.00	45.0°		20.7°		19.6°	
E-250 Superwagon	9.50Rx16.5	68.44	66.00	45.3°		20.9°		13.4°	
E-350 Van	9.50Rx16.5 9.50x16.5	68.44 68.44	66.00 66.00	45.0°		23.1°		23.6°	
E-350 Supervan	9.50Rx16.5 9.50x16.5	68.44	66.00	45.0°		23.1°		16.3°	
E-350 Superwagon	9.50Rx16.5 9.50x16.5	68.44	66.00	44.7°		22.1°		15.3°	

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE — CONT'D

E-150-350 — Cont'd

Model	Tire Size	Tread Width		Ground Clearance						Departure Angle J		
				Approach Angle G			Ramp Angle H					
		Front	Rear	138" WB	158" WB	176" WB	138" WB	158" WB	176" WB	138" WB	158" WB	176" WB
		D	E									
E-350 RV Cutaways (S.R.)	9.50Rx 16.5 9.50x 16.5	68.44 68.44	66.00 66.00	45.0°	—	—	23.1°	—	—	13.6°	—	—
E-350 Cutaway (D.R.)	8.75x 16.5	68.44	73.22	44.7°	44.7°	43.6°	22.9°	20.4°	17.2°	13.5°	13.7°	17.9°
E-350 Commercial Cutaway (S.R.)	9.50Rx 16.5 9.50x 16.5	68.44	66.00	45.0°	—	—	23.1°	—	—	13.6°	—	—
E-350 Commercial Cutaway (D.R.)	8.00x 16.5 8.75x 16.5	68.44 68.44	73.22 73.22	42.3°	42.4°	43.6°	21.6°	19.1°	17.2°	12.8°	12.7°	17.7°
E-350 Commercial Stripped Chassis (S.R.)	7.50x 16 9.50x 16.5 9.50x 16.5	68.44 68.44 68.44	66.00 66.00 66.00	46.6°	46.7°	46.7°	23.3°	—	18.3°	13.9°	13.8°	18.8°
E-350 Commercial Stripped Chassis (D.R.)	7.50x 16	68.44	73.22	44.1°	44.2°	44.2°	22.3°	19.5°	19.2°	13.8°	13.7°	19.5°
E-350 P.D.V. (S.R.)	9.50Rx 16.5 9.50x 16.5	68.44 68.44	66.00 66.00	45.0°	—	—	22.2°	—	—	11.5°	—	—
E-350 P.D.V. (D.R.)	8.00x 16.5 8.75x 16.5E	68.44 68.44	73.22 73.22	43.5°	43.6°	—	21.4°	19.1°	—	11.3°	11.2°	—

Chassis — Suspension — Front

TREAD WIDTH/GROUND CLEARANCE — CONT'D

F-150-350

Model	Tire Size	Tread Width		Ground Clearance					
				P		S		T	
		FW	RW	Approach Angle		Ramp Angle		Departure Angle	
		Front	Rear	SWB	LWB	SWB	LWB	SWB	LWB
F-350 4x4 Reg. & Chassis Cab 3378(133)	LT235/85R16	1699 (66.9)	1633 (64.3)	—	40.4°	—	24.2°	—	27.1°(a)
F-350 4x2 Crew Cab 4278(168.4)	LT235/85R16	1669 (65.7)	1633 (64.3)	—	38.0°	—	18.0°	—	24.0°
F-350 4x4 Crew Cab 4278(168.4)	LT235/85R16	1699 (66.9)	1633 (64.3)	—	40.6°	—	21.2°	—	26.2°

(a) 18.0° With Chassis Cab

E-150-350

Model	Tire Size	Tread Width		Ground Clearance					
				Approach Angle		Ramp Angle		Departure Angle	
		Front	Rear	G		H		J	
		D	E	124" WB	138" WB	124" WB	138" WB	124" WB	138" WB
E-150 Van	P225/75R-15SL P235/75R-15XL	69.44 69.44	67.00 67.00	35.6°	35.6°	16.8°	15.1°	20.2°	17.2°
E-150 SuperVan	P235/75R-15XL	69.44	67.00	—	36.4°	—	15.0°	—	12.1°
E-150 Club Wagon	P225/75R-15SL(a) P235/75R-15XL	69.44 69.44	67.00 67.00	35.4°	35.4°	16.2°	14.5°	16.0°	16.2°
				138" WB		138" WB		138" WB	
E-250 Van	8.00x16.5 8.75x16.5 8.75Rx16.5	68.44 68.44 68.44	66.43 66.43 66.43	42.6°		18.5°		21.2°	
E-250 SuperVan	8.75x16.5	68.44	66.00	45.0°		19.9°		15.4°	

(a) Not available on all GVWR

Chassis — Suspension — Rear

REAR SPRINGS/SHOCK ABSORBERS USAGE — ALL VEHICLES

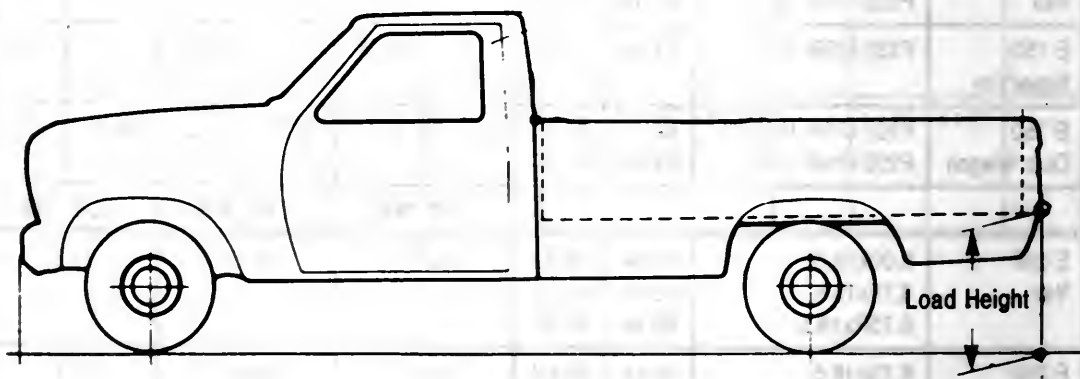
Vehicle	Springs	Shock Absorbers (1)
Ranger	Leaf, 2 Stage Constant Rate	1 inch
Bronco E-150	Leaf, Single Stage Constant Rate	1 inch
F-150 (4x2) Regular Cab	Leaf, Single Stage Constant Rate	1 inch
F-150 (4x2) SuperCab F-150 (4x4)	Leaf, 2 Stage Variable Rate	1 inch
F-250	Leaf, 2 Stage Variable Rate	1 inch
F-250 HD (4x2) F-350 (4x2) Chassis and Crew Cabs	Leaf, Single Stage Constant Rate	Optional
F-350 (4x2) Regular Pickup F-250 HD (4x4), F-350 (4x4)	Leaf, 2 Stage Variable Rate	Optional
E-250-350 Vans E-350 Parcel Delivery Van	Leaf, 2 Stage Variable Rate	1.38"
E-250 Wagons E-350 Super Wagon	Leaf, Single Stage Constant Rate	1.38"

(1) All shock absorbers are the direct, double acting type.

LOAD HEIGHTS

Ranger

Wheelbase	Load Height (in.)	
	Empty	Loaded
113.9	21.06	14.46



Chassis — Suspension — Rear

LOAD HEIGHTS — CONT'D

F-150-350

Vehicle	Body Style	Wheelbase	Load Height	
			Empty	Loaded
F-150 (4x2) Regular Cab	Styleside	116.8	29.3	24.4
		133	28.9	24.4
	Flareside	116.8	30.1	26.2
	Styleside	138.8	30.6	25.4
		155	30.3	25.4
F-150 (4x4) Regular Cab	Styleside	116.8	32.6	27.0
		133	32.5	26.9
	Flareside	116.8	33.5	28.8
	Styleside	155	32.1	26.9
F-250 (4x2) Regular Cab	Styleside	133	33.9	28.5
	Chassis	133	27.6 (1)	21.0 (1)
	Styleside	155	33.3	27.4
F-250 (4x4) Regular Cab	Styleside	133	33.9	28.5
	Chassis	133	27.6 (1)	21.0 (1)
	Styleside	155	34.2	29.1

(1) Frame Height.

Chassis — Suspension — Rear

LOAD HEIGHTS — CONT'D

F-150-350

Vehicle	Body Style	Wheelbase	Load Height	
			Empty	Loaded
F-250 HD (4x2) Regular Cab	Styleside	133	31.6	27.0
	Chassis	133	24.3 (1)	19.3 (1)
		136.8	23.9 (1)	20.0 (1)
		160.8	23.8	20.0 (1)
SuperCab	Styleside	155	31.4	27.1
F-250 HD (4x4) Regular Cab	Styleside	133	34.6	28.7
F-350 SRW (4x2) Regular Cab	Styleside	133	31.7	27.1
F-350 DRW (4x2) Regular Cab	Styleside	133	30.7	26.5
F-350 (4x2) Crew Cab	Styleside	168.4	32.4	27.1
F-350 (4x2) SRW Regular Cab	Chassis	136.8	24.0 (1)	20.0 (1)
F-350 DRW (4x2) Regular Cab	Chassis	136.8	23.6 (1)	19.5 (1)
F-350 (4x4) Regular Cab	Styleside	133	33.3	28.8
F-350 (4x4) Crew Cab	Styleside	168.4	34.2	28.9
F-350 (4x4) Regular Cab	Chassis	133	26.0 (1)	21.1 (1)

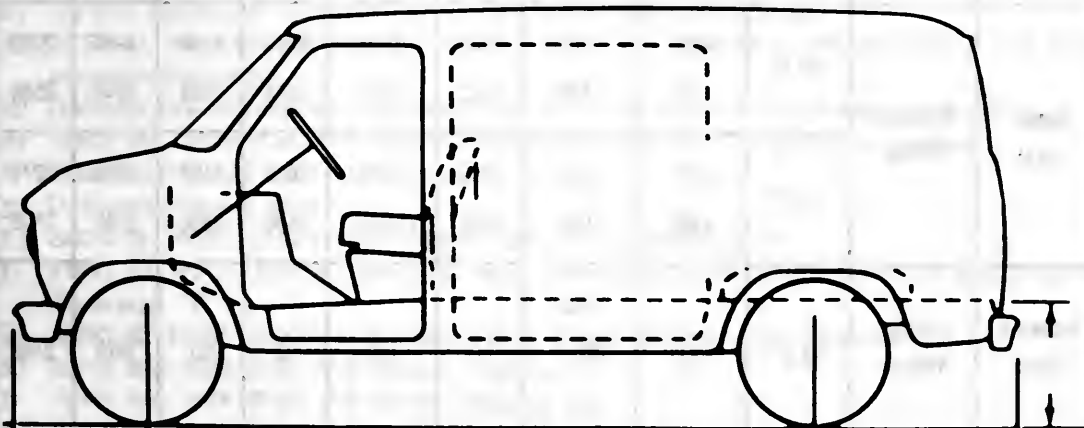
(1) Frame Height.

Chassis — Suspension — Rear

LOAD HEIGHTS — CONT'D

E-150-350

Vehicle	Series	Wheelbase	Load Height	
			Empty	Loaded
E-150	Regular Van	124	27.5	21.8
		138	27.1	21.8
	Club Wagon	124	27.1	21.8
		138	27.2	21.8
	Super Van	138	26.9	23.0
E-250	Regular Van	138	29.1	24.7
	Club Wagon	138	28.4	23.5
	Super Van	138	29.5	25.5
	Super Wagon	138	29.1	23.5
E-350	Regular Van	138	32.2	26.8
	Super Van	138	32.6	27.0
	Super Wagon	138	31.4	25.9



Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES

Model & Series	Body Type	Wheel-base	GVWR (Gross Vehicle Weight Rating)	Payload Rating	GAWR (Gross Axle Weight Rating)				Springs (Combined Rating at Ground)(a)	
					Front		Rear		Front	Rear
					Min.	Max.	Min.	Max.		
Ranger (4x2)	Styleside Pickup	107.9"	3780	1235	1835	2200	2040	2172	1835	2040
			4220	1610	1835	2200	2544	2544	1835	2582
			4380	1760	1835	2200	2700	2700	1835	2837
			4000(b)	1220	1910	2200	2040	2172	1910	2040
			4440(b)	1615	1910	2200	2544	2544	1910	2580
		113.9"	3800	1220	1835	2200	2040	2172	1835	2040
			4260	1620	1835	2200	2544	2544	1835	2582
			4420	1770	1835	2200	2700	2700	1835	2837
			4060(b)	1220	1910	2200	2040	2172	1910	2040
			4500(b)	1620	1910	2200	2544	2544	1910	2582
	Chassis Cab	113.9"	4260	1760	1835	2200	2544	2544	1835	2582
			4420	1910	1835	2200	2700	2700	1835	2837
			4880	2225	2200	2200	3006	3006	2230	3100
Ranger (4x4)	Styleside Pickup	107.9"	4000	1230	1940	2250	2070	2196	1940	2070
			4420	1620	1940	2300	2598	2598	1940	2598
		113.9"	4040	1210	1940	2250	2070	2196	1940	2070
			4480	1620	1940	2300(c)	2598	2598	1940	2598
Bronco II (4x4)	Utility Vehicle	94.0"	(d)	600 (Min.) (d)	(d)	(d)	(d)	(d)	1970	2165

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

Model & Series	Body Type	Wheel-base	GVWR (Gross Vehicle Weight Rating)	Payload Rating	GAWR (Gross Axle Weight Rating)				Springs (Combined Rating at Ground)(a)	
					Front		Rear		Front	Rear
					Min.	Max.	Min.	Max.		
F-150 (4x2)	Flareside Pickup	116.8"	4800	1395	2300	2684	2519	2684	2300	2519
			5250	1825	2300	2950	2886	3166	2300	2886
	Styleside	116.8"	4800	1410	2300	2684	2519	2684	2300	2519
			5250	1835	2300	2950	2886	3166	2300	2886
		133.0"	4900	1400	2500	2684	2684	2684	2500	2878
			5450	1925	2500	3100	2886	3166	2500	2886
	SuperCab Styleside Pickup	138.8"	6100	2510	2500	3100	3750	3750	2500	3774
		155.0"	6050	2285	2575	3375	3750	3750	2575	3775
		155.0"	6250	2375	2575	3400	3750	3750	2575	3775

- (a) Ratings shown are for standard springs or springs that are included in the Payload Package for the specified GVWR, as appropriate. Higher-rated springs may be computer-selected for individual vehicles if equipped with certain options.
- (b) GVWR available only with diesel-equipped Ranger pickup.
- (c) 2750 lb. front GAWR with Snow Plow Special Package or Heavy-Duty Front Suspension Package.
- (d) Ratings are computer-selected based on series and equipment ordered.
- (e) 5864 lbs. with 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine.
- (f) Dual-rear-wheel axle with auxiliary springs.
- (g) Dual-rear-wheel axle.
- (h) 3800 lb. front GAWR with Heavy-Duty Front Suspension.
- (i) 4600 lb. front GAWR, 3943 lb. rear GAWR, with Heavy-Duty Front Suspension Package "B".
- (j) 4600 lb. front GAWR with Heavy-Duty Front Suspension Package "B".
- (k) 3215 lbs. with 6.9L V-8 diesel engine.
- (l) 3290 lbs. with 6.9L V-8 diesel engine.
- (m) DSO.

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

Model & Series	Body Type	Wheel-base	GVWR (Gross Vehicle Weight Rating)	Payload Rating	GAWR (Gross Axle Weight Rating)				Springs (Combined Rating at Ground)(a)	
					Front		Rear		Front	Rear
					Min.	Max.	Min.	Max.		
F-250 (4x2)	Styleside Pickup	133.0"	6300 7300 7800	2630 3480 3980	2570 2570 2570	3320 3320 3320	3880 5246 5246	3880 5246 5246	2570 2570 2570	3935 5262 5525
	Chassis Cab	133.0"	6500 7300	3070 3770	2570 2570	3320 3320	3986 5246	3986 5246	2570 2570	3986 5525
F-250 HD (4x2)	Styleside Pickup	133.0"	8600	4630	2765(k)	4000	6084	6084	2765(k)	6318(e)
	Chassis Cab	133.0"	8600	5005	2765(k)	4000	6084	6084	2765(k)	6318(e)
		136.8"	8600	4860	2915(k)	4000	6084	6084	2915(k)	6385
		160.8"	9000	5130	3065(k)	4000	6084	6084	3065(k)	6385
	SuperCab Styleside Pickup	155.0"	8800	4520	2840(l)	4000	6084	6084	2840(l)	6318(e)
F-350 (4x2)	Styleside Pickup	133.0"	8700 10,000(g)	4670 5680	2765(k) 2765(k)	4000 4000	6084 7400(g)	6084 7400(g)	2765(k) 2765(k)	6318 7975(g)
	Chassis Cab	136.8"	8900(g) 10,000(g) 11,000(f,g)	5100 6070 6960	2915(k) 3065(k) 3065(k)	4000 4000 4000	6084(g) 7335(g) 8200(f,g)	6084(g) 7335(g) 8200(f,g)	2915(k) 3065(k) 3065(k)	6385(g) 7335(g) 8480(f,g)
			10,000(g) 11,000(f,g)	5940 6850	3065(k) 3215	4000 4000	7056(g) 8200(f,g)	7056(g) 8200(f)	3065(k) 3215	7335(g) 8480(f)
	Crew Cab Styleside Pickup	168.4"	8700 9200	4145 4610	3215 3215	4000 4000	5688 6084	5688 6084	3215 3215	5864 7312
F-150 (4x4)	Flareside Pickup	116.8"	5600 6100	1790 2280	2525 2525	3250 3250	3235 3750	3235 3750	2525 2525	3775 3775
	Styleside Pickup	116.8"	5600 6100	1790 2270	2525 2525	3250 3250	3235 3750	3235 3750	2525 2525	3775 3775
		133.0"	5600 6250	1690 2330	2800 2800	3500 3500(h)	3235 3750	3235 3750	2800 2800	3775 3775
	SuperCab Styleside Pickup	155.0"	6450	2255	3100	3550	3750	3750	3100	3775

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

Model & Series	Body Type	Wheel-base	GVWR (Gross Vehicle Weight Rating)	Payload Rating	GAWR (Gross Axle Weight Rating)				Springs (Combined Rating at Ground)(a)	
					Front		Rear		Front	Rear
					Min.	Max.	Min.	Max.		
F-250 (4x4)	Styleside Pickup	133.0"	6600	2485	3305	3800(i)	3880	3880(i)	3305	3943
F-250 HD (4x4)	Styleside Pickup	133.0"	8600	4230	3305	3850(k)	5873	5873	3305	5873
	Chassis Cab	133.0"	8600	4605	3305	3850(k)	5873	5873	3305	5873
	SuperCab Styleside Pickup	155.0"	8600	3870	3920	4410	5873	5873	3920	5873
F-350 (4x4)	Styleside Pickup	133.0"	9000	4580	3375	3920(k)	6084	6084	3375	6327
	Chassis Cab	133.0"	9000	4950	3375	3920(k)	6084	6084	3375	6327
	Crew Cab Styleside Pickup	168.4"	9300	4350	3920	4410(j)	5873	5873	3920	5873
Bronco (4x4)	Utility Vehicle	104.7"	(d)	850 (Min.) (d)	(d)	(d)	(d)	(d)	2450	3218

- (a) Ratings shown are for standard springs or springs that are included in the Payload Package for the specified GVWR, as appropriate. Higher-rated springs may be computer-selected for individual vehicles if equipped with certain options.
- (b) GVWR available only with diesel-equipped Ranger pickup.
- (c) 2750 lb. front GAWR with Snow Plow Special Package or Heavy-Duty Front Suspension Package.
- (d) Ratings are computer-selected based on series and equipment ordered.
- (e) 5864 lbs. with 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine.
- (f) Dual-rear-wheel axle with auxiliary springs.
- (g) Dual-rear-wheel axle.
- (h) 3800 lb. front GAWR with Heavy-Duty Front Suspension.
- (i) 4600 lb. front GAWR, 3943 lb. rear GAWR, with Heavy-Duty Front Suspension Package "B".
- (j) 4600 lb. front GAWR with Heavy-Duty Front Suspension Package "B".
- (k) 3215 lbs. with 6.9L V-8 diesel engine.
- (l) 3290 lbs. with 6.9L V-8 diesel engine.
- (m) DSO.

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

Model & Series	Body Type	Wheel-base	GVWR (Gross Vehicle Weight Rating)	Payload Rating	GAWR (Gross Axle Weight Rating)				Springs (Combined Rating at Ground)(a)	
					Front		Rear		Front	Rear
					Min.	Max.	Min.	Max.		
E-150	Van	124.0"	5250	1530	2570	3150	2860	2860	2570	2860
			5950	2205	2570	3400	3406	3406	2570	3770
			6350	2580	2720	3400	3750	3750	2720	3770
	SuperVan	138.0"	5250	1350	2570	3150	2860	2860	2570	2860
	Club Wagon	124.0"	5900	2000	2570	3400	3406	3406	2570	3770
			6300	2375	2570	3400	3750	3750	2570	3770
E-250	Van	138.0"	6050	2010	2570	3400	3750	3750	2570	3900
	Club Wagon	124.0"	(d)	(d)	(d)	(d)	(d)	(d)	2720	3770
			(d)	(d)	(d)	(d)	(d)	(d)	2720	3770
	Super Wagon	138.0"	(d)	(d)	(d)	(d)	(d)	(d)	2950	6350
E-350	Van	138.0"	6800	2650	2950	3680	4050	4050	2950	4185
	SuperVan	138.0"	7500	3250	2950	3700	4700	4700	2950	4765
			7900	3425	2950	3700	5300	5300	2950	5475
	Club Wagon	138.0"	(d)	(d)	(d)	(d)	(d)	(d)	3250	5305
	Super Wagon	138.0"	(d)	(d)	(d)	(d)	(d)	(d)	2950	6350
	Parcel Delivery Van	138.0"	8750	4305	3100	4200	6340	6340	3100	6550
			9500	5015	3250	4200	6340	6340	3250	6550
	SuperVan	138.0"	9100	4485	2950	4200	6340	6340	2950	6540
	Super Wagon	138.0"	(d)	(d)	(d)	(d)	(d)	(d)	2950	6350
E-350	RV Cutaway	138.0"	8750	3355	2950	4060	6340	6340	2950	6550
			9700(g)	3935	2950	3700	7300(g)	7300(g)	2950	7300
	RV Cutaway	158.0"	10,000(g)	3960	2950	4090	7200(g)	7200(g)	2950	7270
			10,250(g)	5755	3550	4200	6340	6340	3550	6550
	RV Cutaway	158.0"	10,250(g)	6070	3100	4150	7400	7400	3100	7400
			11,000(g)	5950	3250	4150	7400	7400	3250	7400
E-350	RV Cutaway	176.0"	6415	3850	3850	4150	7400	7400	3850	7400
			11,000(g)	6450	3850	4150	7400	7400	3850	7400

Chassis — Suspension — Rear

GROSS AXLE WEIGHT RATINGS — ALL VEHICLES — CONT'D

Model & Series	Body Type	Wheel-base	GVWR (Gross Vehicle Weight Rating)	Payload Rating	GAWR (Gross Axle Weight Rating)				Springs (Combined Rating at Ground)(a)	
					Front		Rear		Front	Rear
					Min.	Max.	Min.	Max.		
E-350 Cont'd	Commercial Cutaway	138.0"	8950	5135	2950	4200	6340	6340	2950	6550
			9800(g)	5805	2950	3680	7200	7200	2950	7300
			10,000(g)	6005	2950	3890	7200	7200	2950	7300
			10,250(g,m)	6190	3700	3700	7300	7300	3700	7300
		158.0"	9700(g)	5600	3100	4090	6700	6700	3100	6700
			10,250(g,m)	5905	3700	3700	7300	7300	3700	7300
			10,900(g,m)	6335	3700	3700	7300	7300	3700	7300
		176.0"	10,600(g,m)	6335	3700	3700	7300	7300	4200	7300
	Commercial Stripped Chassis(m)	138.0"	9550	6380	3250	3400	6340	6340	3250	6550
		158.0"	9550 10,000(g)	6290 6520	3250 3550	3400 3550	6340 7300(g)	6340 7300(g)	3250 3550	6550 7300(g)

- (a) Ratings shown are for standard springs or springs that are included in the Payload Package for the specified GVWR, as appropriate. Higher-rated springs may be computer-selected for individual vehicles if equipped with certain options.
- (b) GVWR available only with diesel-equipped Ranger pickup.
- (c) 2750 lb. front GAWR with Snow Plow Special Package or Heavy-Duty Front Suspension Package.
- (d) Ratings are computer-selected based on series and equipment ordered.
- (e) 5864 lbs. with 6.9L V-8 diesel engine or 7.5L 4V V-8 gasoline engine.
- (f) Dual-rear-wheel axle with auxiliary springs.
- (g) Dual-rear-wheel axle.
- (h) 3800 lb. front GAWR with Heavy-Duty Front Suspension.
- (i) 4600 lb. front GAWR, 3943 lb. rear GAWR, with Heavy-Duty Front Suspension Package "B".
- (j) 4600 lb. front GAWR with Heavy-Duty Front Suspension Package "B".
- (k) 3215 lbs. with 6.9L V-8 diesel engine.
- (l) 3290 lbs. with 6.9L V-8 diesel engine.
- (m) DSO.

TORQUE SPECIFICATIONS

Ranger

Description	Torque	
	N-m	Ft-Lb
Rear Leaf Spring U-Bolt to Plate Nut	88-102	65-75
Rear Shock Absorber to Lower Bracket Nut	54-82	40-60
Rear Shock Absorber to Upper Bracket Nut	54-82	40-60
Rear Shackle to Spring Nut	136-210	100-155
Rear Spring to Frame Nut	136-210	100-155
Rear Spring to Front Bracket Nut	102-155	75-115
Rear Spring Shackle to Rear Bracket Nut	136-210	100-155
Stabilizer Bar to Mounting Bracket	40-57	30-42
Stabilizer Link to Bar and Frame	54-82	40-60

E-, F-150-350, Bronco

Description	Application	Torque Range	
		N-m	Ft-Lb
Jounce Bumper to Frame Nut	All	25-40	19-30
Leaf Spring to Axle U-Bolt Nut	All except F-250 — F-350 (4x2) Chassis Cab F-250 — F-350 (4x2) Chassis Cab	100-155 200-280	75-115 150-210
Leaf Spring to Front Bracket Nut and Bolt	All Except F-150 (4x2) F-150 (4x2)	200-280 100-155	150-210 75-115
Leaf Spring to Rear Shackle Nut and Bolt	All except F-250 — F-350 (4x2) Chassis Cab F-250 — F-350 (4x2) Chassis Cab	100-150 200-280	75-115 150-210
Rear Shackle to Frame Nut and Bolt	All except F-250 — F-350 (4x2) Chassis Cab F-250 — F-350 (4x2) Chassis Cab	100-150 200-280	75-115 150-210
Shock Absorber (Lower Mount) to Axle Nut and Bolt	All	55-85	40-64
Shock Absorber (Upper Mount) to Frame Nut	All	55-85	40-64
Shock Absorber/Stabilizer Bar Bracket to Axle Nut	F-250 — F-350 (4x2) Chassis Cab	40-57	30-42
Stabilizer Bar to Axle Nut	All	40-57	30-42
Stabilizer Link Bracket to Frame Nut and Bolt	All 4x4 Vehicles	27-41	20-30
Stabilizer Link to Bracket Nut and Bolt	All 4x4 Vehicles	54-82	40-60
Stabilizer Link to Frame Nut and Bolt	All 4x2 Vehicles	54-82	40-60
Stabilizer Link to Stabilizer Bar Nut	All	20-34	15-25

Chassis — Suspension — Rear

TORQUE SPECIFICATIONS — CONT'D

Torque Specifications — E-150 — E-250 — E-350

Description	Application	Torque Range	
		N-m	Ft-Lbs
Jounce Bumper to Frame Nut	E-150 E-250 — E-350	21-33 28-41	15-25 20-30
Leaf Spring to Axle U-Bolt Nut	E-150 E-250 E-350	101-145 101-145 204-244	74-107 74-107 150-180
Leaf Spring to Front Bracket Nut and Bolt	E-150 — E-250 — E-350	204-276	150-204
Leaf Spring to Rear Shackle Nut and Bolt	E-150 — E-250 — E-350	101-145	74-107
Rear Shackle to Frame Nut and Bolt	E-150 — E-250 — E-350	101-145	74-107
Shock Absorber (Lower Mount) to Axle Nut and Bolt	E-150 — E-250 — E-350	55-81	40-60
Shock Absorber (Upper Mount) to Frame Nut	E-150 — E-250 — E-350	25-37	18-28

IDENTIFICATION

Safety Compliance Certification Label — All Vehicles

MFD. BY FORD MOTOR CO. IN U.S.A.			
DATE:		GVWR:	
FRONT GAWR:		REAR GAWR:	
WITH TIRES RIMS		WITH TIRES RIMS	
AT	PSI COLD	AT	PSI COLD
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.			
Vehicle Identification No.			
Type			
2K	9A		
EXTERIOR PAINT COLORS			DSO
WB	Type GVW	Body	Trans
108	L2N0	CARS	W
			Axle
			72

REAR AXLE CODE

Identification Tag — Ranger

DATE (YEAR, MONTH, DAY)			
AXLE MODEL		5J18	
WGY-D		3.00 9 S102A	
RATIO (CONVENTIONAL) TRACTION-LOK WOULD BE (3L00)		RING GEAR DIAMETER	
		PLANT CODING S—STERLING V—VAN DYKE	

Identification Tags — E-, F-150-350, Bronco

RATIO		DANA AXLES		CUST. AXLE ASSEMBLY NO.	
DANA PART NO.		0000-000		PREFIX LETTERS	
INCLUDE ON LIMITED-SLIP ASSEMBLIES ONLY		000000-00		SUFFIX LETTERS	
DATE (YEAR, MONTH, DAY)		L-S			
AXLE MODEL		WGY-A		5 J 18	
FORD DESIGN AXLES		3.08 9		W157	
RATIO (CONVENTIONAL) TRACTION-LOK (3L08)		RING GEAR DIAMETER		PLANT CODING	
				● S — STEERING PLANT ● V — VAN DYKE PLANT	

Chassis — Drive Axles

IDENTIFICATION — CONT'D

7.5 Inch Conventional Axle — Ranger

Identification Tag	Ratio	Ring Gear Diameter (Inches)	Differential Type
WGX-AU	3.45:1	7.5	C2
WGX-BV	4.10:1	7.5	T2
WGX-AV	3.73:1	7.5	C2
WGX-BK	3.08:1	7.5	C2

7.5 Inch Integral Carrier Traction-Lok Axle — Ranger

Identification Tag	Ratio	Ring Gear Diameter (Inches)	Differential Type
WFC-BG	4.10:1	7.5	T2
WFC-C	3L45:1	7.5	T2
WFC-AD	3L73:1	7.5	T2

8.8 Inch Integral Carrier Conventional Axle — E-, F-150-350, Bronco

Identification Tag	Ratio	Ring Gear Diameter (Inches)	Differential Type
WEC-A	3.55:1	8.8	C2
WEC-B	3.55:1	8.8	C2
WDR-G	3.55:1	8.8	C2
WDR-A	2.47:1	8.8	C2
WDR-C	3.08:1	8.8	C2
WDR-D	3.55:1	8.8	C2
WDR-E	3.55:1	8.8	C2 W/ 12 inch brakes
WDR-F	3.08:1	8.8	C2

8.8 Inch Integral Carrier Traction-Lok Axle — E-, F-150-250, Bronco

Identification Tag	Ratio	Ring Gear Diameter (Inches)	Differential Type
WFL-B	3L08:1	8.8	T2
WFL-C	3L55:1	8.8	T2
WFL-F	3L55:1	8.8	T2*

*Maximum .003 Pitchline Runout.

Ranger Chassis Cab Traction-Lok and Conventional 8.8" Integral Carrier

Identification Tag	Ratio	Ring Gear Diameter (Inches)	Differential Type
WFL-H	3.73:1	8.8	T2
WDR-G	3.73:1	8.8	C2

Chassis — Drive Axles

IDENTIFICATION — CONT'D

9 Inch Removable Carrier Conventional and Traction-Lok Axles — E-, F-150-250, Bronco

Identification Tag	Ratio	Ring Gear Diameter (Inches)	Differential Type
WFT-AZ	3.50:1	9	T4
WFT-V	3.50:1	9	T4
WFT-U	3.00:1	9	T4
WDM-BK	3.50:1	9	C2
WDM-DL	4.11:1	9	C4
WDM-DM	3.00:1	9	C4
WEV-AJ	3.00:1	9	C4
WEV-AV	3.00:1	9	C4
WEV-AZ	3.50:1	9	C4
Type C4 — Conventional 4-Pinion		Type C2 — Conventional 2-Pinion	
Type T4 — Traction-Lok 4-Pinion			

General Specifications — Rear Axles

Truck Series	Ranger
Axle	Std. and Traction-Lok
Rating @ Ground (lbs.)	2200 (Pickup); 2700 (Chassis Cab); 3200 (Chassis Cab)
Type	Semi-Floaters
Drive	Hotchkiss
Housing — Type	Cast Center
— Cover Attachment	Bolted
Wheel Bearings — Type	Ball Bearing — Engaged Straight Roller
Type Gears	Hypoid
Material	Shot Peened Alloy Steel
Pinion — Mounting	Overhung
Differential — Type	2-Pinion
Bearing	Tapered Roller

Chassis — Drive Axles

GENERAL SPECIFICATIONS — REAR AXLE — CONT'D

Truck Series	E-150 Ford 3750	Bronco, F-150 Ford 3750
Axle	Std. & Traction-Lok — 9 inch	Std. & Traction-Lok — 8.8 inch
Rating @ Ground — (lbs.)	3750	
Type	Semi-Floating	
Drive	Hotchkiss	
Housing — Type	Banjo	Cast Center
— Cover Attachment	Welded	Bolted
Wheel Bearings — Type	Tapered Roller	Straight Roller
Type Gears	Hypoid	
Material	Shot Peened Alloy Steel	
Pinion — Mounting	Straddle Mounted	Overhung
Differential — Type	4-Pinion	2-Pinion
Bearings	Tapered Roller	

Chassis — Drive Axles

GENERAL SPECIFICATIONS — REAR AXLE — CONT'D

Truck Series	F-250(3)	F-250(2)	F-250 HD/ F-350 SRW	F-350 4x2 DRW Pickup	F-350 4x2 DRW Chassis Cab	F-250 HD/ F-350 SRW
Axle	Ford 4050 Conventional & Traction- Lok	Dana 60-3, 61-2 Conventional & Limited- Slip	Dana 70-2U Conventional & Limited- Slip(5)	Dana 70- 1HD Conventional & Limited- Slip	Dana 70- 1U(7400) 1HD(8200)	Dana 61-1 Conventional & Limited- Slip
Rating @ Ground-(Lbs)	4050	5300	6300	7400	7400/8200	6250
Type	Semi-Floating		Full-Floating			
Drive	Hotchkiss					
Housing—Type	Cast Center					
—Cover Attachment	Bolted					
Wheel Bearings-Type....	Straight Roller		Tapered Roller			
Type Gears	Hypoid					
Material	Shot Peened Alloy Steel	Alloy Steel				
Pinion-Mounting	Overhung					
Differential—Type	2-Pinion		2-Pinion(1)			
Bearings	Tapered Roller					

(1) 4-Pinion for Limited-Slip.

(2) All except base GVWR.

(3) Base GVWR.

(4) With all 5.8L engines.

(5) All 6.9L/7.5L engines with M4 transmission and 3.54/4.10 ratios will include the Dana 70-2U full-floating axle. Also included with 6.9L V-8 diesel engine, automatic transmission and 3.54 or 4.10 axle ratios.

Chassis — Drive Axles

General Specifications — Rear Axle — Cont'd

Truck Series	E-250(3)	E-250(2)	E-250/350	E-350
Axle	Ford 4050 Conventional & Traction-Lok	Dana 60-3, 61-2 Conventional & Limited-Slip	Dana 61-1 Conventional & Limited-Slip	Dana 70 Conventional & Limited-Slip
Rating @ Ground — (lbs.)	4050	5300	6340	7400
Type	Semi-Floating		Full-Floating	
Drive	Hotchkiss			
Housing — Type	Cast Center			
— Cover Attachment	Bolted			
Wheel Bearings — Type ...	Straight Roller		Tapered Roller	
Type Gears	Hypoid			
Material	Shot Peened Alloy Steel	Alloy Steel		
Pinion — Mounting	Overhung			
Differential — Type	2-Pinion			2-Pinion(1)
Bearings	Tapered Roller			

(1) 4-Pinion for Limited-Slip.

(2) Under 8500 lb. GVWR, except base GVWR.

(3) Base GVWR.

Chassis — Drive Axles

General Specifications — Front Axle — (4x4)

Application	Ranger 4x4	Std. Bronco & F-150 4x4	Std. F-250 4x4	Opt. F-250 HD 4x4(1) Std. F-350 4x4
Rating @ Ground — (lbs.) ...	2750	3550	3800	4500
Type	Full-Floating			
Springs	Coil		Leaf	
Housing — Type	Unitized			
— Cover Attachment	Bolted			
Lubricant Capacity (pt.) — Differential	1.0	3.6		3.8
Wheel Bearings — Type	Tapered Roller			
Gears — Type	Hypoid			
Ratios Available (to 1)	3.08(a), 3.45, 3.73	3.07, 3.54	3.54, 4.09	3.54, 4.10
Pinion — Mounting.....	Above Center			
Differential — Type	Two-Pinion			
Bearings	Tapered Roller			

(1) Ranger 4x4 only.

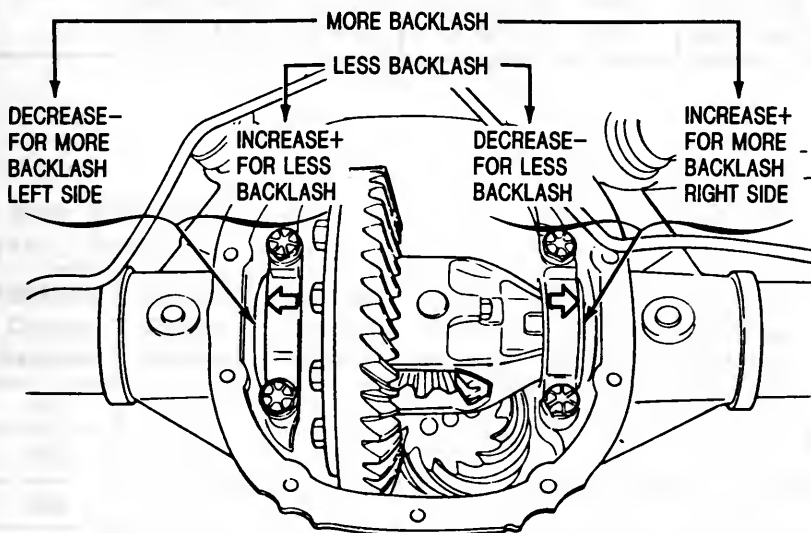
(2) 4600 lbs. front axle available only as part of Snow Plow Special Pkgs. or HD Front Suspension Pkg. "B" on F-250 HD 4x4 over 8500 lbs. GVWR.

SERVICE SPECIFICATIONS

Differential Shim Backlash Changes and Thickness Codes — 7.5 Inch Axle — Ranger

Backlash Specifications

Backlash Change Required (Inch)	Thickness Change Required (Inch)	Backlash Change Required (Inch)	Thickness Change Required (Inch)	Backlash Change Required (Inch)	Thickness Change Required (Inch)	Backlash Change Required (Inch)	Thickness Change Required (Inch)
.001	.002	.005	.006	.009	.012	.013	.018
.002	.002	.006	.008	.010	.014	.014	.018
.003	.004	.007	.010	.011	.014	.015	.020
.004	.006	.008	.010	.012	.016		



Chassis — Drive Axles

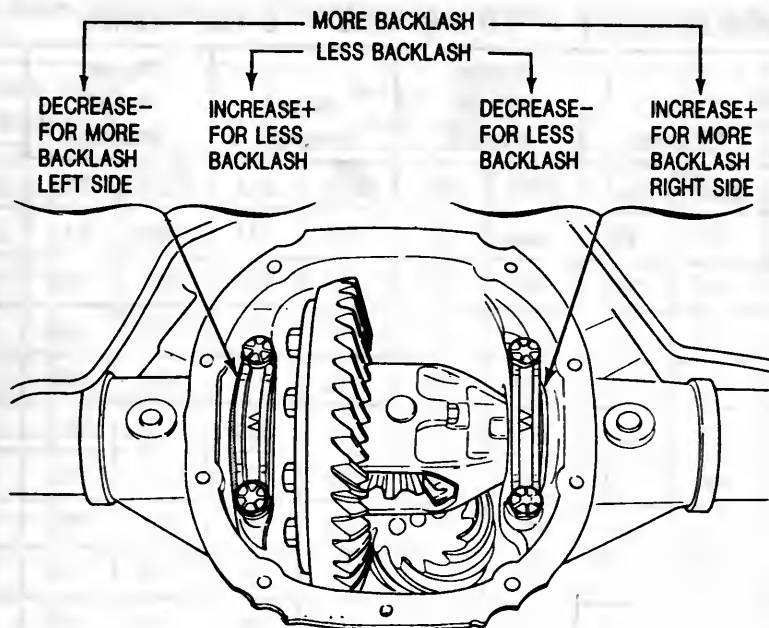
SERVICE SPECIFICATIONS — CONT'D

Differential Shim Backlash Changes and Thickness Codes — 7.5 Inch Axle — Ranger

Thickness Codes — 7.5 Inch Axle — Ranger

Number of Stripes and Color Code	Dim. A	Number of Stripes and Color Code	Dim. A	Number of Stripes and Color Code	Dim. A	Number of Stripes and Color Code	Dim. A
2-C-COAL	.3070-.3075	2-PINK	.2870-.2875	3-WH	.2690-.2695	4-ORNG	.2510-.2515
1-C-COAL	.3050-.3055	1-PINK	.2850-.2855	2-WH	.2670-.2675	3-ORNG	.2490-.2495
5-BLU	.3030-.3035	5-GRN	.2830-.2835	1-WH	.2650-.2655	2-ORNG	.2470-.2475
4-BLU	.3010-.3015	4-GRN	.2810-.2815	5-YEL	.2630-.2635	1-ORNG	.2450-.2455
3-BLU	.2990-.2995	3-GRN	.2790-.2795	4-YEL	.2610-.2615	2-RED	.2430-.2435
2-BLU	.2970-.2975	2-GRN	.2770-.2775	3-YEL	.2590-.2595	1-RED	.2410-.2415
5-PINK	.2930-.2935	1-GRN	.2750-.2755	2-YEL	.2570-.2575		
4-PINK	.2910-.2915	5-WH	.2730-.2735	1-YEL	.2550-.2555		
3-PINK	.2890-.2895	4-WH	.2710-.2715	5-ORNG	.2530-.2535		

SERVICE SPECIFICATIONS — CONT'D



Differential Shim Backlash Changes — 8.8 Inch Axle — E-150-350, F-150-350 (4x2), Bronco

Backlash Change Required	Thickness Change Required	Backlash Change Required	Thickness Change Required	Backlash Change Required	Thickness Change Required	Backlash Change Required	Thickness Change Required
.001	.002	.005	.006	.009	.012	.013	.018
.002	.002	.006	.008	.010	.014	.014	.018
.003	.004	.007	.010	.011	.014	.015	.020
.004	.006	.008	.010	.012	.016		

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — 9.0 Inch Axle — E-150, Bronco

Feeler Gauge Reading		Shim Required		Feeler Gauge Reading		Shim Required		Feeler Gauge Reading		Shim Required	
(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)
.889	.035	.127	.005	.584	.023	.432	.017	.279	.011	.737	.029
.864	.034	.152	.006	.559	.022	.451	.018	.254	.010	.0762	.030
.838	.033	.178	.007	.533	.021	.483	.019	.229	.009	.787	.031
.813	.032	.203	.008	.508	.020	.508	.020	.203	.008	.813	.032
.787	.031	.229	.009	.483	.019	.533	.021	.178	.007	.838	.033
.762	.030	.254	.010	.457	.018	.559	.022	.152	.006	.864	.034
.737	.029	.279	.011	.432	.017	.584	.023	.127	.005	.889	.035
.711	.028	.305	.012	.406	.016	.610	.024	.102	.004	.914	.036
.686	.027	.330	.013	.381	.015	.635	.025	.076	.003	.940	.037
.660	.026	.356	.014	.356	.014	.660	.026	.051	.002	.965	.038
.635	.025	.381	.015	.330	.013	.686	.027				
.610	.024	.406	.016	.305	.012	.711	.028				

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — Traction-Lok Limited Slip Differential (Ford) — E-150

Feeler Gauge Reading (1)		Remove Shim(s) From Nominal		Total Required Shim Pack Thickness (2)	
MM	Inches	MM	Inches	MM	Inches
0.025-0.050	0.001-0.002	None	None	1.270	0.050
0.076-0.177	0.003-0.007	0.127	0.005	1.143	0.045
0.203-0.304	0.008-0.012	0.254	0.010	1.016	0.040
0.330-0.413	0.013-0.017	0.381	0.015	0.889	0.035
0.457-0.558	0.018-0.022	0.508	0.020	0.762	0.030
0.584-0.685	0.023-0.027	0.635	0.025	0.635	0.025
0.711-0.812	0.028-0.032	0.762	0.030	0.508	0.020
0.838-0.939	0.033-0.037	0.889	0.035	0.381	0.015
0.965-1.066	0.038-0.042	1.016	0.040	0.254	0.010
1.092-1.193	0.043-0.047	1.143	0.045	0.127	0.005
1.219-1.270	0.048-0.050	1.270	0.050	0.000	0.000

(1) With clutch hub, the shims and clutch plates are compressed 14-20 N·m (10-15 ft·lb).

(2) Service shims are available in 0.254mm (0.010 inch) and 0.127mm (0.005 inch).

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — Integral Carrier Axle — Dana — E-250 — E-350, F-250 — F-350 (4x2), F-250 (4x4)
Standard

Old Pinion Marking	New Pinion Marking								
	-4	-3	-2	-1	0	+1	+2	+3	+4
+4	+0.008	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0
+3	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001
+2	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002
+1	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003
0	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004
-1	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005
-2	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006
-3	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.007
-4	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.007	-0.008

Metric

Old Pinion Marking	New Pinion Marking								
	-10	-8	-5	-3	0	+3	+5	+8	+10
+10	+20	+18	+15	+13	+10	+08	+05	+03	0
+8	+18	+15	+13	+10	+08	+05	+03	0	-.03
+5	+15	+13	+10	+08	+05	+03	0	-.03	-.05
+3	+13	+10	+08	+05	+03	0	-.03	-.05	-.08
0	+10	+08	+05	+03	0	-.03	-.05	-.08	-.10
-3	+08	+05	+03	0	-.03	-.05	-.08	-.10	-.13
-5	+05	+03	0	-.03	-.05	-.08	-.10	-.13	-.15
-8	+03	0	-.03	-.05	-.08	-.10	-.13	-.15	-.18
-10	0	-.03	-.05	-.08	-.10	-.13	-.15	-.18	-.20

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — Dana Front Drive Axle — F-150-350 (4x4), Bronco

Standard

Old Pinion Marking	New Pinion Marking								
	-4	-3	-2	-1	0	+1	+2	+3	+4
+4	+0.008	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0
+3	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001
+2	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002
+1	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003
0	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004
-1	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005
-2	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006
-3	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.007
-4	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.007	-0.008

Metric

Old Pinion Marking	New Pinion Marking								
	-10	-8	-5	-3	0	+3	+5	+8	+10
+10	+1.20	+1.18	+1.15	+1.13	+1.10	+1.08	+1.05	+1.03	0
+8	+1.18	+1.15	+1.13	+1.10	+1.08	+1.05	+1.03	0	-.03
+5	+1.15	+1.13	+1.10	+1.08	+1.05	+1.03	0	-.03	-.05
+3	+1.13	+1.10	+1.08	+1.05	+1.03	0	-.03	-.05	-.08
0	+1.10	+1.08	+1.05	+1.03	0	-.03	-.05	-.08	-.10
-3	+1.08	+1.05	+1.03	0	-.03	-.05	-.08	-.10	-.13
-5	+1.05	+1.03	0	-.03	-.05	-.08	-.10	-.13	-.15
-8	+1.03	0	-.03	-.05	-.08	-.10	-.13	-.15	-.18
-10	0	-.03	-.05	-.08	-.10	-.13	-.15	-.18	-.20

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Differential Shim Selection — Dana Front Drive Axle — Ranger (4x4), Bronco II

Standard

Old Pinion Marking	New Pinion Marking								
	-4	-3	-2	-1	0	+1	+2	+3	+4
+4	+0.008	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0
+3	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001
+2	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002
+1	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003
0	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004
-1	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005
-2	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006
-3	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.007
-4	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.007	-0.008

Metric

Old Pinion Marking	New Pinion Marking								
	-10	-8	-5	-3	0	+3	+5	+8	+10
+10	+.20	+.18	+.15	+.13	+.10	+.08	+.05	+.03	0
+8	+.18	+.15	+.13	+.10	+.08	+.05	+.03	0	-.03
+5	+.15	+.13	+.10	+.08	+.05	+.03	0	-.03	-.05
+3	+.13	+.10	+.08	+.05	+.03	0	-.03	-.05	-.08
0	+.10	+.08	+.05	+.03	0	-.03	-.05	-.08	-.10
-3	+.08	+.05	+.03	0	-.03	-.05	-.08	-.10	-.13
-5	+.05	+.03	0	-.03	-.05	-.08	-.10	-.13	-.15
-8	+.03	0	-.03	-.05	-.08	-.10	-.13	-.15	-.18
-10	0	-.03	-.05	-.08	-.10	-.13	-.15	-.18	-.20

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

7.5 Inch Axle Adjustments

Adjustment	Specification
RING GEAR RUNOUT	
Maximum.	0.102mm (0.004 inch)
Nominal shim size to be installed on left side during diagnosis.	6.73mm (0.265 inch)
RING GEAR BACKLASH	
Backlash between ring gear and pinion teeth.	0.20-0.38mm (0.008-0.015 inch) NOTE: Preferred setting is 0.304-0.381mm (0.012-0.015 inch)
Maximum backlash variation between teeth.	0.10mm (0.004 inch)
DRIVE PINION DEPTH	
Use Pinion Depth Tool Set, D79P-4020-A to determine drive pinion depth setting.	—
DIFFERENTIAL BEARING PRELOAD	
Add 0.152mm (0.006 inch) to each side of differential case shim stack determined for correct ring gear backlash.	—
COMPANION FLANGE RUNOUT	
Total Indicated Runout.	0.25mm (0.010 inch)

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

8.8 Inch Axle Adjustments

Description	Inches(mm)
Maximum Runout of Back Face of Ring Gear	0.004(0.10)
Maximum Runout of Back Face of Differential Case Flange	0.003(0.08)
Differential Side Gear Thrust Washer Thickness	0.030-0.032(0.76-0.81)
Differential Pinion Gear Thrust Washer Thickness	0.030-0.032(0.76-0.81)
Nominal Pinion Locating Shim	0.030(0.76)
Available Pinion Gear Shims in Steps of 0.001 Inch	0.021-0.037(0.53-0.94)
Backlash Between Ring Gear & Pinion Teeth	0.008-0.015(0.20-0.38) (0.012-0.015 inches Preferred) (0.30-0.38mm Preferred)
Maximum Backlash Variation Between Teeth	0.004(0.10)
Maximum Radial Runout of Companion Flange in Assembly	0.012(0.30) T.I.R.

9.0 Inch Axle Adjustments

Description	mm	Inch
Backlash Between Ring Gear and Pinion	0.203-0.381	0.008-0.015
Maximum Backlash Variation Between Teeth	0.102	0.004
Maximum Runout of Backface of Ring Gear	0.102	0.004
Differential Side Gear Thrust Washer Thickness	0.762-0.812	0.030-0.032
Differential Pinion Gear Thrust Washer Thickness	0.762-0.838	0.030-0.033
Nominal Locating Shim (Continued) Removable Carrier	0.381	0.015
Shims Available (Steps of 0.001) Removable Carrier	0.254-0.736	0.010-0.029
Differential Bearing Preload	Used	0.127-0.117
	New	0.203-0.304

Integral Carrier Axle Dana (Conventional and Limited Slip) Adjustments

Description	Specification
Backlash Between Ring Gear and Pinion	0.10-0.23mm (0.004-0.009 inch)
Backlash Maximum Variation Between Teeth	0.05mm (0.003 inch)

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Traction-Lok Axle Adjustments — 8.8 Inch Ring Gear Axle

Description	Inches
Maximum Runout of Backface of Ring Gear or Differential Case Flange	0.003
Differential Side Gear Thrust Washer Thickness	0.030-0.032
Differential Pinion Gear Thrust Washer Thickness	0.030-0.032
Differential Carrier Spread	0.016
Nominal Pinion Locating Shim	0.030
Available Pinion Gear Shims in Steps of 0.001 Inch	0.021-0.037
Backlash Between Ring Gear and Pinion Teeth	0.008-0.015 (0.012-0.015 Preferred)
Maximum Backlash Variation Between Teeth	0.004
Maximum Radial Runout of Companion Flange in Assembly	0.010 T.I.R.

Dana Model 28 Front Drive Axle Specifications — Ranger (4x4), Bronco II

Description	Specification
Carrier Spread	Removal: 0.25mm (0.010 inch)
	Installation: 0.37mm (0.015 inch)
Drive Pinion Rotational Torque	1.7-4.0 N-m (15-35 in-lb)
Drive Pinion Nut Torque	237-305 N-m (175-225 ft-lb)
Ring Gear and Pinion Backlash	0.01-0.25mm (0.004-0.010 inch)

Dana Axle Front Drive Adjustments — F-150 — F-350 (4x4) and Bronco

Description	Specification
Drive Pinion Preload	2.25-2.43 N-m (20-40 in-lb)
Ring Gear Backlash	0.13-0.23mm (0.005-0.009 inch) No more than 0.08mm (0.003 inch) variation in any three places

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

8.8 Inch and 9.0 Inch Axle (Conventional and Traction-Lok) Adjustment Torques

Description	Torque		Torque	
	N-m	(in-lb)	N-m	(ft-lb)
Minimum torque required to tighten pinion flange nut to obtain correct pinion bearing preload	—	—	217	(160) (1)
Pinion Bearing Preload — (Collapsible spacer) (2)				
Original Bearings — 8.8 inch	9-1.5	(8-14)	—	—
New Bearings — 8.8 inch	1.8-3.3	(16-29)	—	—

(1) If pinion bearing preload exceeds specification before this torque is obtained, install a new spacer.

(2) With Oil Seal.

Traction-Lok Axle Rotating Torques

Axle	N-m	(ft-lb)
7.5 Inch	41 (1)	30
8.8 Inch	41	30
9.0 Inch (Limited Slip)	120-250 (2)	163-338

(1) With original cones. 54 N-m (40 ft-lb) with new ones.

(2) With new clutch plates. 54 N-m (40 ft-lb) with reused clutch plates.

Ring Gear Torque Specifications

Model	Torque Limits	
	N-m	(ft-lb)
Ford	95-115	70-85
Dana 44	61-81	45-60
Dana 60-3, 61-2	136-163	100-120
Dana 70, 70-H.D.	136-149	100-110
Dana 60-5	136-163	100-120
Dana 61-1	136-163	100-120

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveshaft — Companion Flange Combined Runout

Flange Bearing Cup Runout	Driveshaft Universal Cross-Shaft Runout — Inch												
	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.012
0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009	0.010	0.011	0.012
0.001	0.001	0.0013	0.0022	0.0032	0.0042	0.0051	0.0061	0.0071	0.0081	0.0091	0.010	0.011	0.012
0.002	0.002	0.0022	0.0027	0.0037	0.0045	0.0053	0.0062	0.0072	0.0082	0.0092	0.0101	0.0111	0.0121
0.003	0.003	0.0032	0.0036	0.0042	0.005	0.0058	0.0067	0.0077	0.0085	0.0094	0.0104	0.0113	0.0123
0.004	0.004	0.0042	0.0045	0.005	0.0057	0.0064	0.0072	0.0081	0.009	0.0097	0.0107	0.0116	0.0126
0.005	0.005	0.0051	0.0053	0.0058	0.0063	0.0071	0.0078	0.0087	0.0094	0.0102	0.0111	0.012	0.013
0.006	0.006	0.0061	0.0062	0.0068	0.0072	0.0078	0.0085	0.0092	0.010	0.0108	0.0116	0.124	0.0134
0.007	0.007	0.0071	0.0073	0.0075	0.0081	0.0087	0.0093	0.0099	0.0103	0.0114	0.0122	0.013	0.0138
0.008	0.008	0.0081	0.0082	0.0087	0.009	0.0094	0.010	0.0104	0.011	0.012	0.0128	0.0135	0.0144
0.009	0.009	0.0091	0.0092	0.0094	0.0097	0.102	0.108	0.0114	0.012	0.0127	0.0134	0.0141	0.015
0.010	0.010	0.010	0.0101	0.0104	0.0107	0.0111	0.0116	0.0122	0.0128	0.0134	0.0141	0.0148	0.0156
0.011	0.011	0.011	0.0111	0.0113	0.0116	0.012	0.0124	0.013	0.0135	0.0141	0.0148	0.0154	0.0162
0.012	0.012	0.012	0.0121	0.0123	0.0126	0.013	0.0134	0.0138	0.0144	0.015	0.0156	0.0162	0.0169

The total (combined) companion flange runout is located in the square where the columns containing the flange bearing cup runout and universal cross shaft runout readings intersect.

Front Pinion and Driveline Angles

(See Suspension — Front in this Manual)

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angles — Rear — Ranger

Model	Wheelbase	Engine	Transmission	Rear Spring Capacity (Lb)	Rear Axle	Engine Angle	Driveshaft Angle	Pinion Angle
Ranger (4x2)	108 inch (2743mm)	All	All	860/927	6.75°	5.5°	7.4°	6.6°
					7.50°	5.5°	6.8°	6.6°
				1100	6.75°	5.5°	—	6.6°
					7.50°	5.5°	7.3°	6.6°
	114 inch (2895mm)	All	All	860/927	6.75°	5.5°	6.6°	6.6°
					7.50°	5.5°	6.1°	6.6°
				1100/1200	6.75°	5.5°	—	6.6°
					7.50°	5.5°	6.6°	6.6°
Ranger (4x4)	108 inch (2743mm)	All	C5 4-Speed	860/927	7.50°	5.5°	9.6°	6.6°
			5-Speed	860/927	7.50°	5.5°	9.8°	6.6°
			C5 4-Speed	1100	7.50°	5.5°	10.2°	6.6°
			5-Speed	1100	7.50°	5.5°	10.4°	6.6°
	114 inch (2895mm)	All	C5 4-Speed	860/927	7.50°	5.5°	8.8°	6.6°
			5-Speed	860/927	7.50°	5.5°	8.9°	6.6°
			C5 4-Speed	1100	7.50°	5.5°	9.4°	6.6°
			5-Speed	1100	7.50°	5.5°	9.5°	6.6°

Driveline Angles — E-F-150-350, Bronco

Engine Angles to Horizontal

Engine F-150 — F-350 (4x2) (4x4), and Bronco Couplingshaft, Driveshaft & Rear Axle Pinion Angles

Model	Wheelbase	Engine	Transmission	Angles
F-150-350 (4x2) (4x4), Bronco	All	All Engines	All	5-1/2°

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angularity F-150 — F-350 (4x2)

Model	Wheel- base MM (inches)	Rear Spring (Kg) Min. Max.	Rear Axle Pinion Angle To Horizontal (Degrees)	Driveline Angle To Horizontal (Degrees)						
				Transmission						
				M3	SROD	M4(N)	M4(W)	C5	C6	AOD
F-150	2967 (117)	560	6 (1) (3)	7-1/2	8	—	8	8	8	8
		840	6-1/2 (1) (3)	8-1/2	8-1/2	—	8-1/2	8-1/2	9	9
F-150	3378 (133)	560	6 (1) (3)	6	6	—	6	6	6	6
		840	6-1/2 (1) (3)	6-1/2	6-1/2	—	6-1/2	6-1/2	7	7
		560	6 (2) (4)	—	—	5	—	—	—	—
		840	6-1/2 (2) (4)	—	—	5	—	—	—	—
		560	6 (2) (3)	—	—	6-1/2	—	—	—	—
		840	6-1/2(2) (3)	—	—	8	—	—	—	—
F-150	3526 (138)	630	6 (2) (4)	4-1/2	4-1/2	5	5	—	4-1/2	4-1/2
		840	6-1/2 (2) (4)	4-1/2	4-1/2	5	5	—	4-1/2	4-1/2
		630	6 (2) (3)	6	6	6	6	—	6-1/2	6-1/2
		840	6-1/2(2) (3)	7-1/2	7-1/2	7-1/2	7-1/2	—	7-1/2	7-1/2
F-150	3937 (155)	630	6 (2) (4)	4	4	4	4	—	4	4
		840	6-1/2 (2) (4)	4	4	4	4	—	4	4
		630	6 (2) (3)	5-1/2	5-1/2	5	5	—	5-1/2	5-1/2
		840	6-1/2 (2) (3)	6-1/2	6-1/2	6-1/2	6-1/2	—	6-1/2	7

(1) One-Piece Driveline

(3) Driveshaft

CE4205-2B

(2) Two-Piece Driveline

(4) Coupling Shaft

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angularity F-150 — F-350 (4x2)

Model	Wheel- base MM (inches)	Rear Spring (Kg) Min. Max.	Rear Axle Pinion Angle To Horizontal (Degrees)	Driveline Angle To Horizontal (Degrees)						
				Transmission						
				M3	SROD	M4(N)	M4(W)	C5	C6	AOD
F-250	3378 (133)	810	6 (1) (3)	6-1/2	6-1/2	—	6-1/2	—	6-1/2	6-1/2
		1175	6 (1) (3)	7	7	—	7	—	7	7
		810	6 (2) (4)	—	—	6-1/2	—	—	—	—
		1175	6 (2) (4)	—	—	6-1/2	—	—	—	—
		810	6(2) (3)	—	—	6	—	—	—	—
		1175	6(2) (3)	—	—	7	—	—	—	—
F-250	3526 (138)	810	6 (2) (4)	4-1/2	4-1/2	5	5	—	4-1/2	4-1/2
		1175	6 (2) (4)	4-1/2	4-1/2	5	5	—	4-1/2	4-1/2
		810	6(2) (3)	7	7	7	7	—	8	8
		1175	6(2) (3)	8	8	8	8	—	8	8
F-250	3937 (155)	810	6 (2) (4)	4	4	4	4	—	4	3-1/2
		1175	6 (2) (4)	4	4	4	4	—	4	3-1/2
		810	6(2) (3)	6	6	6	6	—	6	7
		1175	6(2) (3)	7	7	7	7	—	7	7-1/2

(1) One-Piece Driveline

(3) Driveshaft

CE4205-2B

(2) Two-Piece Driveline

(4) Coupling Shaft

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angularity — F-150 — F-350 (4x2) — Cont'd

Model	Wheel- base MM (Inches)	Rear Spring (Kg) Min. Max.	Rear Axle Pinion Angle To Horizontal (Degrees)	Driveline Angle To Horizontal (Degrees)		
				Transmission		
				M4(N)	M4(W)	C6
F-250 H.D., F-350 SRW	3378	1275	6 (1) (3)	—	—	6-1/2
	(133)	1460	5 (1) (3)	—	—	5
F-350 DRW	3378	1275	6 (1) (3)	—	—	5
	(133)	1460	5 (1) (3)	—	—	6-1/2
F-350 SRW	3378 (133)	1275	6 (2) (4)	5	5	5
		1460	5 (2) (4)	5	5	5
		1275	6 (2) (3)	7-1/2	7-1/2	7-1/2
		1460	5 (2) (3)	5	5	5
F-350 DRW	3378 (133)	1275	6 (2) (4)	5	5	5
		1460	5 (2) (4)	5	5	5
		1275	6 (2) (3)	7-1/2	7-1/2	7-1/2
		1460	5 (2) (3)	5	5	5
F-350 F-250 H.D. SRW	3475 (137)	1275	5 (2) (4)	5	5	5
		1460	5 (2) (4)	5	5	5
		1275	5 (2) (3)	6-1/2	6-1/2	6-1/2
		1460	5 (2) (3)	5-1/2	5 1/2	5 1/2
F-350 DRW	3475 (137)	1275	5 (2) (4)	5	5	5
		1460	5 (2) (4)	5	5	5
		1275	5 (2) (3)	6-1/2	6-1/2	6-1/2
		1460	5 (2) (3)	5-1/2	5-1/2	5-1/2
F-350 F-250 H.D. SRW	3937 (155)	1275	6 (2) (4)	4	4	4
		1460	5 (2) (4)	4	4	4
		1275	6 (2) (3)	6	6	6
		1460	5 (2) (3)	4	4	4
F-350 DRW	3937 (155)	1275	6 (2) (4)	4	4	4
		1460	5 (2) (4)	4	4	4
		1275	6 (2) (3)	6	6	6
		1460	5 (2) (3)	4	4	4

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angularity — F-150 — F-350 (4x2) — Cont'd

Model	Wheel- base MM (Inches)	Rear Spring (Kg) Min. Max.	Rear Axle Pinion Angle To Horizontal (Degrees)	Driveline Angle To Horizontal (Degrees)		
				Transmission		
				M4(N)	M4(W)	C6
F-350 F-250 H.D. SRW	4084 (161)	1290	5(2)(4)	3	3	3
		1463	5(2)(4)	3	3	3
		1290	5(2)(3)	6	6	6-1/2
		1463	5(2)(3)	5	5	5-1/2
F-350 DRW	4084 (161)	1290	5(2)(4)	3-1/2	3-1/2	3
		1463	5(2)(4)	3-1/2	3-1/2	3
		1290	5(2)(3)	6	6	6-1/2
		1463	5(2)(3)	5-1/2	5-1/2	5-1/2

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Rear Axle Pinion Angles to Horizontal

F150-250-350 (4x4), Bronco

Model	Wheelbase		Spring Rating at Pad (Lbs)	Spring Part No. (5560)	Curb Load Empty
	MM	Inch			
F150 (4x4)	2967	117	1389	E1TA-SB	6-1/2°
	2967	117	1654	E1TA-TB	6-1/2°
	2967	117	1786	E1TA-UB	6-1/2°
F-150 (4x4)	3378	133	1389	E1TA-SB	5-1/2°
	3378	133	1654	E1TA-TB	5°
	3378	133	1786	E1TA-UB	5°
F-250 (4x4) LD	3378	133	1786	E0TA-ASE	6°
	3378	133	2073	E-TA-ATC	6°
	3378	133	2372	E0TA-AUC	6°
	3378	133	2590	E0TA-AVA	6°
	3378	133	2811	E0TA-BAB	6°
F-250 (4x4) HD	3378	133	2811	E0TA-BAB	5-1/2°
F-350 (4x4)	3378	133	2977	E0TA-BBA	5-1/2°
F-150 (4x4)	3937	155	1654	E1TA-TB	5°
	3937	155	1786	E1TA-UB	5°
F-250 (4x4)	3937	155	1786	E0TA-ASE	6°
	3937	155	2073	E0TA-ATC	6°
	3937	155	2372	E0TA-AUC	6°
	3937	155	2590	E0TA-AVA	6°
Bronco	2660	104	1390	E0TA-AYB	10-1/2°
	2660	104	1650	E0TA-AZC	10-1/2°

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Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Rear Driveshaft Angles to Horizontal

F-150-250-350 (4x4), Bronco

Model	Wheelbase		Engine	Spring Rating At Pad (lbs)	Transmission	Curb Load Empty
	MM	Inch				
F-150 (4x4)	2967	117	All	1389 1654 1786	All	11-1/2°
F-150 (4x4)	3378	133	All	1654 1786	All	8-1/2°
F-150 (4x4)	3378	133	All	1389	All	9-1/2°
F-250 (4x4) LD	3378	133	All	1786	All	8-1/2°
F-250 (4x4) LD	3378	133	All	2073	All	8-1/2°
F-250 (4x4) LD	3378	133	All	2372 2590 2811	All	9°
F-250 (4x4) HD F-350 (4x4)	3378	133	All	2811 2977	All	8-1/2°
F-150 (4x4)	3937	155	All	1654 1786	All	7-1/2°
F-250 (4x4)	3937	155	All	1786	All	7°
F-250 (4x4)	3937	155	All	2973	All	7-1/2°
F-250 (4x4)	3937	155	All	2372 2590	All	8°
Bronco	2660	104	All	1390	All	12°
Bronco	2660	104	All	1650	All	12-1/2°

Engine Angle to Horizontal

E-150-350

Model	Wheelbase	Engine	Transmission	Angle
All	All	All	All	4°

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Coupling Shaft Angles to Horizontal at Curb Load Empty

E-150 — E-350

Model	Wheelbase		Engine	Transmission	Angle
	MM	Inch			
E-250-350	3505	138	4.9L (300 CID) I-6	3-Speed Manual	3-1/2°
E-250-350	3505	138	4.9L (300 CID) I-6 5.8L (351 CID) V-8 6.6L (400 CID) V-8 7.5L (460 CID) V-8	C-6 Auto	3-1/2°
E-250-350	4013	158	5.8L (351 CID) V-8 6.6L (400 CID) V-8 7.5L (460 CID) V-8	C-6 Auto	3-1/2°

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Driveshaft Angle to Horizontal at Curb Load (Empty)

E-150 — E-350

Model	Wheelbase		Engine	Transmission	Spring Rating At Pad (lbs)	Angle
	MM	Inch				
E-150	3150	124	4.9L (300 CID) I-6 5.0L (302 CID) V-8	3-Speed Manual	1250 1450 1685 1750	6° 6-1/2° 6-1/2° 7°
E-150	3150	124	4.9L (300 CID) I-6 5.0L (302 CID) V-8	4-Speed O.D. Manual	1250 1450 1685 1750	6° 6-1/2° 6-1/2° 7°
E-150	3150	124	4.9L (300 CID) I-6 5.0L (302 CID) V-8 5.8L (351 CID) V-8	C6 Auto	1250 1450 1685 1750	6° 6-1/2° 6-1/2° 7°
E-150	3505	138	4.9L (300 CID) I-6 5.0L (302 CID) V-8	3-Speed Manual	1250 1450 1685 1750	4° 4-1/2° 5° 5°
E-150	3505	138	4.9L (300 CID) I-6 5.0L (302 CID) V-8	4-Speed O.D. Manual	1250 1450 1685 1750	4-1/2° 4-1/2° 5-1/4° 5°
E-150	3505	138	4.9L (300 CID) I-6 5.0L (302 CID) V-8 5.8L (351 CID) V-8	C6 Auto	1250 1450 1685 1750	4-1/2° 4-1/2° 5-1/4° 5°
E-250	3505	138	4.9L (300 CID) I-6	3-Speed Manual	1785 1825 2075 2100 2365 2450 2700	5-1/2° (2) 6° (2) 5-1/2° (2) 6-1/2° (2) 5-1/2° (2) 7° (2) 7-1/2° (2)

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveshaft Angle to Horizontal at Curb Load (Empty)

E-150 — E-350 — Cont'd

Model	Wheelbase		Engine	Transmission	Spring Rating At Pad (lbs)	Angle
	MM	Inch				
E-250	3505	138	4.9L (300 CID) I-6 5.0L (302 CID) V-8 5.8L (351 CID) V-8 6.6L (400 CID) V-8	C6 Auto.	1785	5° (1)
					1785	5-1/2° (2)
					1825	5-1/2° (1)
					1825	6° (2)
					2075	5° (1)
					2075	5-1/2° (2)
					2100	5-1/2° (1)
					2100	6-1/2° (2)
					2365	5° (1)
					2365	5-1/2° (2)
					2450	6° (1)
					2450	7° (2)
					2700	6° (1)
					2700	7-1/2° (2)
E-350	3505	138	4.9L (300 CID) I-6	3-Speed Manual	2450	8° (2)
					2850	6-1/2° (2)
					2950	8-1/2° (2)
					3235	7-3/4° (2)
					3300	8-1/4° (2)
E-350	3505	138	4.9L (300 CID) I-6 5.8L (351 CID) V-8 6.6L (400 CID) V-8 7.5L (460 CID) V-8	C-6 Auto.		
					2450	6-1/2° (1)
					2450	8° (2)
					2850	5-1/2° (1)
					2850	6-1/2° (2)
					2950	7° (1)
					2950	8-1/2° (2)
					3235	6-1/2° (1)
					3235	8° (2)
					3300	7° (1)
					3300	8° (2)
E-350	4013	158	5.8L (351 CID) V-8 6.6L (400 CID) V-8 7.5L (460 CID) V-8	C-6 Auto.	2450	6-1/4° (2)
					2950	7° (2)
					3235	6° (2)
					3300	6-1/2° (2)

(1) One-Piece Driveshaft. (2) Two-Piece Driveshaft.

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Rear Axle Pinion Angles to Horizontal at Curb Load (Empty)

E-150 — E-350

Model	Wheelbase		Spring Rating At Pad (lbs)	Angle
	MM	Inch		
E-150	3150	124	1250	2-1/2°
			1450	3°
			1685	3°
			1750	3°
E-150	3505	138	1250	4°
			1450	4-1/2°
			1685	5°
			1750	4-1/2°
E-250	3505	138	1785	4°
			1825	4-1/2°
			2075	4°
			2100	4-1/2°
			2365	3-1/2°
			2450	5°
			2700	5°
E-350	3505	138	2450	5°
			2850	4°
			2950	5°
			3235	3-1/2°
			3300	5°
E-350	4013	158	2450	5°
			2950	5°
			3235	3-1/2°
			3300	5°

Chassis — Drive Axles

SERVICE SPECIFICATIONS — CONT'D

Driveline Angles — Cont'd

Double Cardon Type U-Joint (Bronco Only)

Engine Angle to Horizontal — Bronco

Model	Wheelbase	Engine	Transfer Case	Engine Angle
Bronco	104"	All Engines	Part Time	5-1/2°

Rear Driveshaft Angle to Horizontal — Bronco

Model	Wheelbase	Engine	Transmission	Transfer Case	Curb Load Empty
Bronco	104"	All Engines	Manual	Part Time	12°
	104"	All Engines	Automatic	Part Time	12-1/2°

Rear Axle Pinion Angle to Horizontal — Bronco

Model	Spring Capacity at Pad	Spring Part No. 5560	Curb Load Empty
Bronco	1650#	E0TA-AZC	12°
	1390#	E0TA-AYB	12°

Chassis — Drive Axles

TORQUE SPECIFICATIONS

7.5 Inch Axle

Description	Torque	
	N-m	Ft-Lb
Differential Bearing Cap Bolts	95-115	70-85
Differential Pinion Shaft Lock Bolt	20-40	15-30
Cover Bolts	34-47	25-35
Cover Bolt at Ratio Tag	20-34	15-25
Filler Plug	20-41	15-30
Drive Pinion Nut (1)	230	170
Driveshaft to Companion Flange (2)	95-128	70-95
Leaf Spring U-Bolt Nuts	75-102	55-75
Shock Absorber to Axle Bracket	54-82	40-60
Ring Gear Bolts — Conventional Differential (2) and Traction-Lok	95-115	70-85
Brake Backing Plate Bolts	27-54	20-40

(1) See Drive Pinion Bearing Preload Specifications also.

(2) Coat bolt threads with Loctite (EOAZ-19554-B) or equivalent.

Chassis — Drive Axles

TORQUE SPECIFICATIONS — CONT'D

Traction-Lok Limited Slip Differential — Ranger

Description	Torque			
	N-m	Ft-Lb	N-m	Ft-Lb
Pinion Shaft Lock Bolt	21-40	15-30		
Rotating Torque Required During Bench Check or in Vehicle with One Wheel on the Ground	41	Original Plates (30)	54	New Plates (30)

8.8 Inch Conventional Axle

Description	Torque	
	N-m	Ft-Lb
Differential Bearing Cap Bolt — Inch	95-115	70-85
Differential Pinion Shaft Lock Bolt (1)	20-40	15-30
Ring Gear Attaching Bolts — Inch (1)	95-115	70-85
Rear Cover Screw	34-47	25-35
Oil Filler Plug	20-40	15-30
Brake Backing Plate Nuts — F-150 — E-250, F-250 (2)	28-54 92-115	20-40 50-70
Driveshaft to Axle Companion Flange	9-20	8-15

(1) Using Loctite E0AZ-19554-B (or equivalent).

(2) 4050 lb. axle.

8.8 Inch Traction-Lok Axle

Description	Torque	
	N-m	Ft-Lb
Differential Bearing Cap Bolt — Inch	95-115	70-85
Differential Pinion Shaft Lock Bolt	20-40	15-30
Ring Gear Attaching Bolts — Inch (1)	95-115	70-85
Rear Cover Screw	34-47	25-35
Oil Filler Plug	20-40	15-30
Brake Backing Plate Nuts F-150	28-54	20-40
Brake Backing Plate Nuts F-250, E-250	68-95	50-70
Driveshaft to Axle Companion Flange	9-20	8-15

(1) Using Loctite (or equivalent)

Chassis — Drive Axles

TORQUE SPECIFICATIONS — CONT'D

9.0 Inch Axle

Description	Torque	
	N-m	Ft-Lb
Pinion Retainer to Carrier Bolts	41-60	30-45
Ring Gear Attaching Bolts	95-115	70-85
Bearing Cap Bolts	95-115	70-85
Carrier to Housing Nuts	34-54	25-40
Adjusting Nut Lock Bolts	17-33	12-25
Axle Shaft Bearing Retainer Nut	28-54	20-40
	N-m	In-Lb
Pinion Bearing Preload — Original Bearing	1.0-1.5	8-14
Pinion Bearing Preload — New Bearing	1.8-3.3	16-29

Dana Rear Axles

Description	Axle Model			
	60, 61		70, 70B	
	N-m	Ft-Lb	N-m	Ft-Lb
Pinion Shaft Nut	339-366	250-270	339-366	250-270
Differential Bearing Cap Bolts	109-147	80-90	109-147	80-90
Ring Gear Attaching Bolts	136-163	100-120	136-163	100-120
Differential Case Bolts			75-107	55-75
Oil Filler Plug	28-40	20-30	28-40	20-30
U-Joint Bolts	21-27	15-20	21-27	15-20
Cover to Housing Bolts	41-54	30-40	41-54	30-40

Chassis — Drive Axles

TORQUE SPECIFICATIONS — CONT'D

Dana Front Drive Axle — Ranger (4x4)

Description	Torque	
	N-m	Ft-Lb
Axle Pivot Bolt	163-203	120-150
Axle Pivot Bracket to Frame Nut	95-124	70-92
Axle Stud	211-277	155-205
Ball Joint Nut — Lower	109	80
Ball Joint Nut — Upper	150	110
Bearing Cap Bolts	48-54	35-40
Carrier to Axle Arm Bolts	54-68	40-50
Carrier Shear Bolt	102-129	75-95
Front Driveshaft U-Bolt Nuts	11-20	8-15
Lower Shock Absorber to Radius Arm Nut	66-92	48-68
Lower Spring Seat Nut	95-135	70-100
Radius Arm Bracket Front Bolt	37-50	27-37
Radius Arm Bracket Lower Bolt	211-277	155-205
Ring Gear Bolts	68-81	50-60

Dana Front Drive Axle — F-150-350 (4x4), Bronco

Description	Torque	
	N-m	Ft-Lb
Bottom Ball Joint Nut	122-149	90-110
Top Ball Joint Nut	135 (Minimum)	100 (Minimum)
End Yoke Nut	271-298	200-220
Bearing Cap Bolts	108-122	80-90
Differential Retaining Bolts	41-54	30-40
Ring Gear Bolts	61-81	45-60
Support Arms Tabs to Carrier Bolts	111-150	82-110

Chassis — Drive Axles

TORQUE SPECIFICATIONS — CONT'D

Driveshaft — Single Cardon U-Joint — Ranger (4x2)

Description	N·m	(ft·lb)
Circular Flange Bolts	95-130	70-95

Driveshaft — Double Cardon U-Joint — Ranger (4x4)

Description	Torque
Driveshaft-to-Transfer Case Bolts	16-20 N·m (12-15 ft·lb)
Driveshaft-to-Front and Rear Axle U-Bolt Nuts	16-20 N·m (12-15 ft·lb)

Driveshaft — Single Snap Ring U-Joint — E-, F-150-350, Bronco

Description	Bolt Size	Torque Limits	
		(ft·lb)	N·m
Bolt Yoke to Coupling Shaft	5/8-18	148-164 (1)	201-222 (1)
	3/4-16	175-240	238-325
	7/8-14	250-300	339-406
	1-20	160	216
Nut-U-Joint Flange to Main and Auxiliary Input or Output Shaft	1-20	90-130	123-176
	1 1/4-18	350-420	475-569
	1 1/2-18	380-470	516-637
	1 1/2-16	425-525	577-711
Nut-U-Joint — U-Bolt	5/16-18	8-15	11-20
	3/8-18	17-26	24-35
	7/16-20	30-40	41-54
Bolt and Nut — Parking Brake Drum to Universal Joint Flange	3/8-24	37-50	51-67
	7/16-20	37-49	51-66
		58-78	79-105
	1/2-20	55-75	75-101
		10-115	136-155
Coupling Shaft Center Bearing Bracket to Support	7/16-20	37-54	51-73
Bolt — Driveshaft U-Joint to Rear Yoke	1/2-20	90-110	123-149
Bolt and Nut — U-Joint Adapter to Rear Axle	1/2-20	60-70	82-94

(1) Dana

Driveshaft — Double Cardon U-Joint — Bronco

Nomenclature	Bolt Size and (ft·lb)
Driveshaft-to-Transfer Case Bolts	5/16-24 20-28 (28-33 N·m)
Driveshaft-to-Front and Rear Axle U-Bolt Nuts	5/16-18 8-15 (11-20 N·m)

Powertrain — Clutch

CLUTCH IDENTIFICATION — RANGER, F-150-250, BRONCO

Specifications		Model/Engine/Clutch Usage		
		Ranger 2.0L I-4[K] 2.3L I-4[Z] 2.8L V-6[S] (2)	F-150-250 (U/8500 lb.), Bronco 3.8L V-6[Q] 4.9L I-6[C] 5.0L V-8[E]	F-250 (U/8500 lb.) W/4050 lb. [U] Cast Center Axle 5.8L V-8[F] (1)(2)
D I S C A S S E M B L Y	Clutch Manufacturers	Daikin	Alma	Alma
	Disc Assy. — Part No.	E37A-FA	E3TA-KA	E3TA-KA
	Color Identification	None	1 White	1 White
	Type (W/Spring Vibr. Damp)	Segmented	Torsion Bend	Torsion Bend
	O.S. Diameter (Approx.) mm(in.)	225 (9.0)	254 (10.0)	254 (10.0)
	I.S. Diameter (Approx.) mm(in.)	150 (5.9)	158 (6.25)	158 (6.25)
	Facing Area Sq. cm (Sq. In.)	441.2 (68.4)	617.4 (95.7)	617.4 (95.7)
	Facing Thickness (Ea.) mm(in.)	3.80 (.149)	3.45 (.136)	3.45 (.136)
	Compressed Thickness mm (in.)	8.40 (.330)	8.12 (.320)	8.12 (.320)
	Lining Material	Woven Non-Asbestos	F-201 Non-Asbestos	F-201 Non-Asbestos
	Mfg. and Part No.	ASAHI-NC80	—	—
	No. Torsion Springs & Color Code Identification	2-Yellow 2-Plain	5-Red-Inner 5-Black-Outer	5-Red-Inner 5-Black-Outer
P R E S S U R E	Clutch Manufacturers	Daikin	Alma	Alma
	Pressure Plate — Part No.	E2TA-BC	E3TA-KA	E3TA-LA
	Color Code Ident. (Cover)	None	None	None
	Press. Spring Part No.	Belleville	Belleville	Belleville
	Quantity Required	One	One	One
	Color of Springs	—	—	—
	Load Per Spring — Lb.	—	—	—
	Type (Plate)	Belleville	Belleville	Belleville
	TOTAL PLATE PRESS KG.(LB.)	499(1102)	1202(2650)	1202(2650)

(1) E1TA-AB 279mm (11") Clutch Will Be Included on All 5.8L V-8 [F] Engine Applications Until 254mm (10") Hydraulic Clutch Becomes Available

(2) Hydraulic Clutch Controls

Powertrain — Clutch

CLUTCH IDENTIFICATION — F-150-350

Specifications		Model/Engine/Clutch Usage			
		F-250 H.D.-350 4.9L I-6 [C]	F-150-350, Bronco (exc. 4050 lb. [U] Cast Center Axle 5.8L V-8 [F] (1)	F-250 H.D.-350 6.9L V-8 Diesel [R] (2)	F-250 H.D.-350 7.5L V-8 [U] (2)
DISC	Clutch Manufacturers	Borg & Beck/ Alma	Borg & Beck/ Alma	Alma	Alma
	Disc Assy. — Part No.	E1TA-CB	E1TA-AB	E3TA-ED	E3TA-PB
	Color Identification	1 Blue	1 Brown	2 Orange	2 Green
	Type (W/Spring Vibr. Damp)	Segmented	Segmented	One Piece	Segmented
	O.S. Diameter (Approx.) mm(in.)	279 (11.0)	279 (11.0)	301 (11.875)	301 (11.875)
	I.S. Diameter (Approx.) mm(in.)	165 (6.5)	165 (6.5)	171 (6.75)	171 (6.75)
	Facing Area Sq. cm (Sq. In.)	798 (123.7)	798 (123.7)	967.5 (150.0)	967.5 (150.0)
	Facing Thickness (Ea.) mm(in.)	3.55 (.140)	3.55 (.140)	3.96 (.156)	3.96 (.156)
	Compressed Thickness mm(in.)	8.12 (.320)	8.12 (.320)	8.40 (.330)	8.40 (.330)
	Lining Material	Woven Asbestos	Woven Asbestos	F-201 Non-Asbestos	F-20 Non-Asbestos
ASSSEMBLY	Mfg. and Part No.	Thermoid 146-CL	Th. A219X177	Ferodo F-201	Ferodo F-201
	No. Torsion Springs & Color Code Identification	5-Brown-Inner 5-Red-Outer	5-Plain-Inner 5-Tan-Outer	2-Yellow 4-White-Inner 4-Brown-Outer	5-Plain-Inner 5-Pink-Outer
	Clutch Manufacturers	Borg & Beck Luk Inc.	Borg & Beck Luk Inc.	Alma	Alma
	Pressure Plate — Part No.	E1TA-BA	E1TA-BA	E3TA-DC	E3TA-DC
	Color Code Ident. (Cover)	None	None	1-Pink, 1-Orange	1-Pink, 1-Orange
	Press. Spring Part No.	Belleville	Belleville	Coil	Coil
	Quantity Required	One	One	One	One
	Color of Springs	—	—	—	—
PRESSURE	Load Per Spring — Lbs.	—	—	—	—
	Type (Plate)	Belleville	Belleville	Coil	Coil
	TOTAL PLATE PRESS KG. (LB.)	1202 (2650)	1202 (2650)	980 (2160)	980 (2160)

- (1) E1TA-AB 279mm (11") Clutch Will be Included on All 5.8L V-8 [F] Engine Applications Until 254mm (10") Hydraulic Clutch Becomes Available
- (2) Hydraulic Clutch Controls

Powertrain — Clutch

CLUTCH IDENTIFICATION — E-150-350, F-150-350

1985 Clutch Chart

Specifications	★ENGINE/CLUTCH USAGE	
	2.0L I-4 [K] 2.3L I-4 [Z] 2.8L V-6 [S]	★4.9L I-6 [C] 5.0L V-8 [E] 5.8L V-8 [F] (U/8500 lbs. GVWR)
DISC ASSEMBLY: Clutch Manufacturer	Daikin	Alma
Disc Assembly — Part No.	E37A-FB	E4TA-DB
Color Identification	None	2 Bronze
Type (W/Spring Vibration Damper)	Segmented	Torsion Bend
O.S. Diameter (Approx.) mm(in.)	225 (9.0)	254 (10.0)
I.S. Diameter (Approx.) mm(in.)	150 (5.9)	158 (6.25)
Facing Area Sq. cm (Sq. In.)	441.2 (68.4)	617.4 (95.7)
Facing Thickness (Ea.) mm(in.)	3.08 (1.49)	3.45(1.36)
Compressed Thickness mm(in.)	8.40 (.330)	8.13 (.320)
Lining Material	Woven Non-Asbestos	Woven Non-Asbestos
Manufacturers Part No.	ASAHI-NC80	Ferodo F-202
No. Torsion Spring & Color Code Identification	2-Yellow 2-Plain	5-Red-Inner 5-Black-Outer
PRESSURE PLATE: Clutch Manufacturer	Daikin	Alma
Pressure Plate — Part No.	E2TA-BE	E4TA-DA
Color Code Identification (Cover)	None	1-Green
Pressure Spring	Belleville	Belleville
Quantity Required	One	One
Type (Plate)	Belleville	Belleville
Total Plate Pressure Kg. (lbs.)	499 (1102)	873 (1925)
★HYDRAULIC ACTUATION: Control Assy. Part No.	E2TA-AK(1)	E4TA-CA(2)

(1) E47A-AE W/2.8L V-6 [S] (Part Nos. Revised Per PCR 899969-1).

(2) E4UA-BB W/Econoline

Powertrain — Clutch

CLUTCH IDENTIFICATION — E-150-350, F-150-350 — CONT'D

1985 Clutch Chart — Cont'd

Specifications	★ENGINE/CLUTCH USAGE		
	★4.9L I-6 [C] 5.8L V-8 [F] (0/8500 lbs. GVWR)	★6.9L V-8 Diesel [R]	★7.5L V-8 [U]
DISC ASSEMBLY: Clutch Manufacturer	Luk	Luk	Luk
Disc Assembly — Part No.	E4TA-EA	E4TA-FA	E4TA-EA
Color Identification	None	None	None
Type (W/Spring Vibration Damper)	Segmented	Segmented	Segmented
O.S. Diameter (Approx.) mm(in.)	279 (11.0)	279 (11.0)	279 (11.0)
I.S. Diameter (Approx.) mm(in.)	165 (6.5)	165 (6.5)	165 (6.5)
Facing Area Sq. cm (Sq. In.)	798 (123.7)	798 (123.7)	798 (123.7)
Facing Thickness (Ea.) mm(in.)	3.65 (.144)	3.65(.144)	3.65(.144)
Compressed Thickness mm(in.)	8.13 (.320)	8.13 (.320)	8.13 (.320)
Lining Material	Woven Non-Asbestos	Woven Non-Asbestos	Woven Non-Asbestos
Manufacturers Part No.	Ferodo F-202	Ferodo F-202	Ferodo F-202
No. Torsion Spring & Color Code Identification	5-Plain-Inner 5-Plain-Outer	5-Plain-Inner 5-Plain-Outer	5-Plain-Inner 5-Plain-Outer
PRESSURE PLATE: Clutch Manufacturer	Luk	Valeo	Valeo
Pressure Plate — Part No.	E4TA-BA	E4TA-EB	E4TA-EB
Color Code Identification (Cover)	None	1-Green	1-Green
Pressure Spring	Belleville	Belleville	Belleville
Quality Required	One	One	One
Type (Plate)	Belleville	Belleville	Belleville
Total Plate Pressure Kg. (lbs.)	778 (1715)	957 (2110)	957 (2110)
★HYDRAULIC ACTUATION: Control Assy. Part No.	E4TA-CA(2)	E3TA-FA	E3TA-FA

(1) E47A-AE W/2.8L V-6 [S] (Part Nos. Revised Per PCR 899969-1).

(2) E4UA-BB W/Econoline

CLUTCH PEDAL FREE TRAVEL(1)

Models	Free Travel
E-150 — E-350	12.7-50.8 mm (1/2-2 Inch)
F-150 — F-350, Bronco	12.7-50.8 mm (1/2-2 Inch)

(1) Ranger (All Models) and F-250/350 with 6.9L diesel and 7.5L gasoline engines have hydraulic clutch systems, which have no free travel adjustment.

Powertrain — Clutch

SERVICE SPECIFICATIONS — ALL VEHICLES

Face Runout	0.254mm (0.010 inch) (max.)
Bore Runout.....	0.381mm (0.015 inch) (max.)

Torque Specifications

Clutch and Linkage

Ranger

Description	Torque	
	N-m	Ft-Lbs
Clutch Housing to Engine Block Bolt	38-51	28-38
Clutch Housing to Transmission Nut	41-54	30-40
Pressure Plate to Flywheel Bolt	21-32	15-24
Crossmember to Right Frame Nut	150-189	110-140
Crossmember to Left Frame Nut — All Except 2.3L (Ranger 4x4)	150-189	110-140
Crossmember to Left Frame Nut — 2.3L (Ranger 4x4) Only	102-129	75-95
Insulator to Crossmember — All Except 2.8L	97-127	71-94
Insulator to Crossmember — 2.8L Only	97-127	71-94
Insulator to Transmission	81-108	60-80
Driveshaft to Companion Flange	95-130	70-95
Starter to Clutch Housing	21-27	15-20

Clutch — E-150-350; Bronco, F-150-350

(Except F-250 M.D., F-350 With 6.9L Diesel and 7.5L Engines)

Description	Torque	
	N-m	Ft-Lbs
Clutch Housing to Rear Engine Cover Plate	55-67	40-50
Clutch Release Lever Seat to Housing Screws	17-24	12-18
Pressure Plate and Cover Assembly to Flywheel Bolt #387299	27-39	20-29
Bolt #382087	21-27	15-20
Rear Engine Cover Plate to Housing Bolt (Except F-Series 5.8L(M)/6.6L)	17-23	12-17
F-Series 5.8L(M)/6.6L	27-39	20-29
Clutch Housing Bracket Stud (F-Series, Bronco 4.9L Only)	21-27	15-20

Powertrain — Clutch

TORQUE SPECIFICATIONS — CONT'D

Clutch — Warner T-19B and T19D Four-Speed Transmission

Transmission	N-m	Ft-Lb
Transmission to Flywheel Housing	51-56	37-42
Gear Shift Housing to Case	34-47	25-35
Speedometer Cable Retainer to Output Shaft Bearing Retainer	4.5-6	3-4.5
Output Shaft Bearing Retainer to Case	48-61	34-45
Flywheel Housing to Engine	55-67	40-50
Filler Plug	34-54	25-40
Drain Plug	34-54	25-40
Output Shaft Flange Nut	102-149	75-115
Countershaft and Reverse Idler Shaft Retainer Bolt	34-47	25-35
Power Take Off Cover	34-47	25-35
Input Shaft Bearing Retainer	21-33	15-25

Clutch Linkage — Ford 3.03 Three-Speed Transmission

Item	Torque	
	Ft-Lb	N-m
Input Shaft Gear Bearing Retainer to Transmission Gear	30-36	41-48
Transmission to Flywheel Housing	42-50	57-67
Transmission Cover to Transmission Case	20-25	28-33
Speedometer Cable Retainer to Transmission Extension	3-4.5	4.7-6.5
Transmission Extension to Transmission Case	42-50	57-67
Flywheel Housing to Engine	40-50	55-67
Back-Up Lamp Switch	8-12	11-16

Powertrain — Clutch

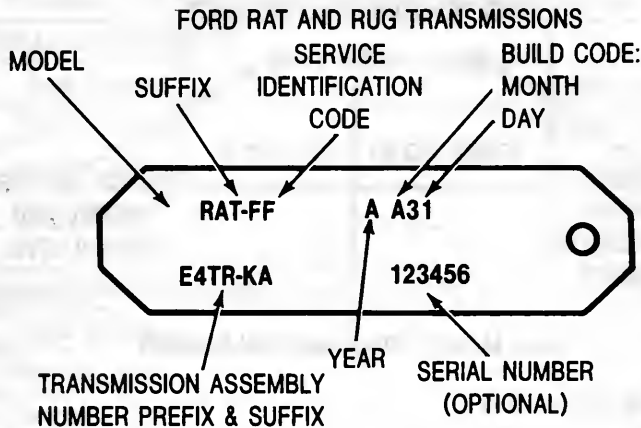
TORQUE SPECIFICATIONS — CONT'D

Clutch Linkage — Warner T-18 Four-Speed Transmission

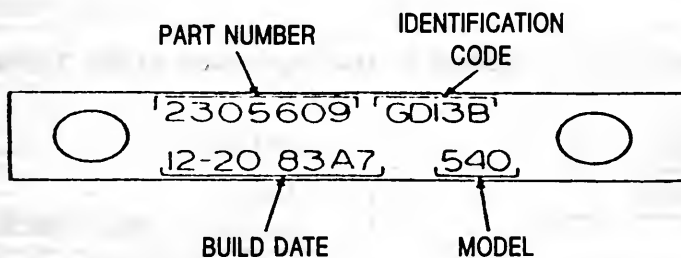
Description	Size	Torque Limits	
		Ft-Lb	N-m
Back-Up Light Switch	9/16-18	15-25	20-47
Clutch Housing to Transmission Mounting Bolts	7/16-14	35-50	47-67
Case Cover	3/8-16	25-35	34-47
Countershaft Rear Retainer	3/8-16	25-35	34-47
Drain Plug	3/4-14	25-40	34-54
Filler Plug	3/4-14	25-40	34-54
Output Shaft Flange Nut	3/4-20	75-110	102-149
Mainshaft Rear Retainer	3/8-16	25-35	34-47
	1/2-13	40-50	54-67
P.T.O. Cover Bolt	3/8-16	25-35	34-47
Reverse Idler Shaft/Countershaft Locking Bolt	3/8-16	25-35	34-47
Front Bearing Retainer to Case	5/16-18	10-15	14-20
Clutch Housing to Engine Block	7/16-14	40-50	54-67

IDENTIFICATION — ALL VEHICLES

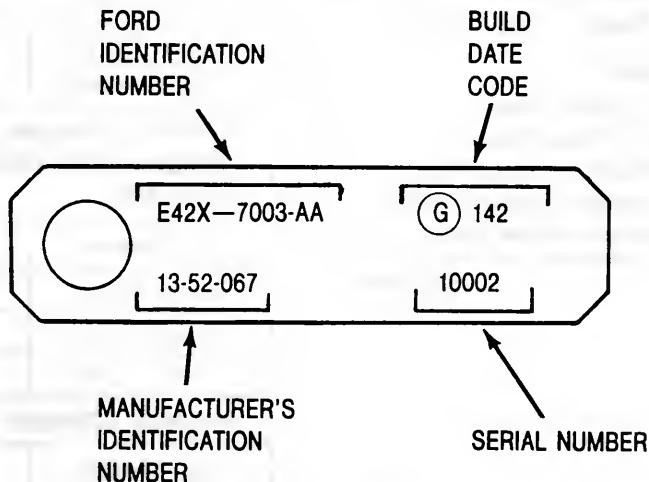
Identification Tags:



Transmission Identification Tag — 3-Speed Manual

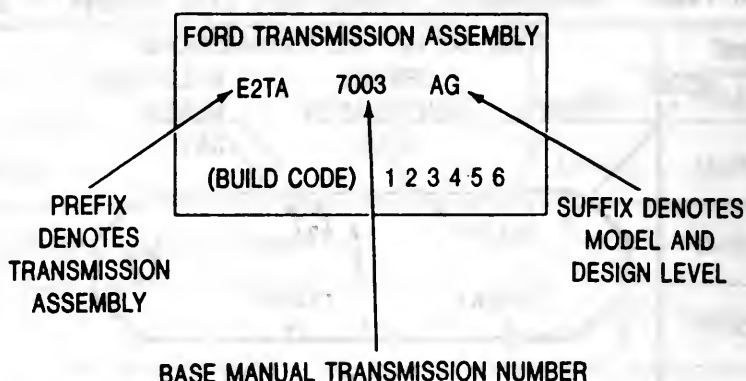


Transmission Identification Tag — Warner Manual Transmissions and New Process Transmissions



Transmission Identification Tag — Warner Manual Transmissions

IDENTIFICATION — ALL VEHICLES — CONT'D



Transmission Identification Tag

The Identification Tag is Located on the Right Side of the Transmission Case at the Front.

TRANSMISSION CODES

Code	Description
Ranger	
4	4-Speed Manual
Econoline — Club Wagon	
C	Ford 3-Speed Manual
B	Ford Manual 4-Speed Overdrive
Bronco — F-150-350	
C	Ford 3-Speed Manual
F	Warner 4-Speed Manual
A	New Process 4-Speed Manual
B	Ford Manual 4-Speed Overdrive
P	T19-Warner 4-Speed Manual

CC3619-1D

SHIFT SPEEDS

RANGER

2.0L Gasoline Engine with Standard Axle

UPSHIFTS: NORMAL ACCELERATION	
Gear Change	Shift Speed
First to Second	15 mph (24 km/h)
Second to Third	29 mph (46 km/h)
Third to Fourth	38 mph (61 km/h)
UPSHIFTS: CRUISING CONDITIONS (RECOMMENDED FOR BEST FUEL ECONOMY)	
Gear Change	Shift Speed
First to Second	12 mph (19 km/h)
Second to Third	22 mph (35 km/h)
Third to Fourth	33 mph (53 km/h)
MAXIMUM DOWNSHIFT SPEEDS	
Gear Change	Shift Speed
Fourth to Third	55 mph (88.5 km/h)
Third to Second	35 mph (56.3 km/h)
Second to First	20 mph (32.2 km/h)

SHIFT SPEEDS — CONT'D

Ranger

2.0L Gasoline Engine with Optional Axle and 2.3L Gasoline Engine All Axles

UPSHIFTS: NORMAL ACCELERATION	
Gear Change	Shift Speed
First to Second	12 mph (19 km/h)
Second to Third	23 mph (37 km/h)
Third to Fourth	30 mph (48 km/h)
*Fourth to Fifth	42 mph (67 km/h)
UPSHIFTS: CRUISING CONDITIONS (RECOMMENDED FOR BEST FUEL ECONOMY)	
Gear Change	Shift Speed
First to Second	9 mph (14 km/h)
Second to Third	17 mph (27 km/h)
Third to Fourth	26 mph (42 km/h)
*Fourth to Fifth	36 mph (58 km/h)
MAXIMUM DOWNSHIFT SPEEDS	
Gear Change	Shift Speed
*Fifth to Fourth	55 mph (88.5 km/h)
Fourth to Third	45 mph (72 km/h)
Third to Second	35 mph (56.3 km/h)
Second to First	20 mph (32.2 km/h)

* When equipped with manual 5-speed overdrive transmission.

Powertrain — Manual Transmission

SHIFT SPEEDS — CONT'D

Ranger 4x4

UPSHIFTS: NORMAL ACCELERATION		
Gear Change	2H or 4H Shift Speed	4L Shift Speed
First to Second	13 mph (21 km/h)	5 mph (8 km/h)
Second to Third	24 mph (38 km/h)	10 mph (15 km/h)
Third to Fourth	32 mph (51 km/h)	13 mph (21 km/h)
Fourth to Fifth	45 mph (72 km/h)	18 mph (29 km/h)
UPSHIFTS: CRUISING CONDITIONS (RECOMMENDED FOR BEST FUEL ECONOMY)		
Gear Change	2H or 4H Shift Speed	4L Shift Speed
First to Second	10 mph (16 km/h)	4 mph (6 km/h)
Second to Third	18 mph (28 km/h)	7 mph (12 km/h)
Third to Fourth	28 mph (45 km/h)	11 mph (18 km/h)
Fourth to Fifth	38 mph (61 km/h)	15 mph (25 km/h)
MAXIMUM DOWNSHIFT SPEEDS		
Gear Change	2H or 4H Shift Speed	4L Shift Speed
Fifth to Fourth	55 mph (88.5 km/h)	22 mph (35 km/h)
Fourth to Third	45 mph (72 km/h)	18 mph (28 km/h)
Third to Second	35 mph (56.3 km/h)	14 mph (22 km/h)
Second to First	20 mph (32.2 km/h)	8 mph (12 km/h)

SHIFT SPEEDS — CONT'D

F-150-350

3-Speed Manual Transmission

Upshifts When Accelerating**		
Shift from	Shift Schedule	
	Part Throttle	Full Throttle
FIRST to SECOND	15 MPH (24 km/h)	30 MPH (48 km/h)
SECOND to THIRD	25 MPH (40 km/h)	45 MPH (72 km/h)

Maximum Downshift Speed*	
Shift from	Maximum Shift Schedule
THIRD to SECOND	40 MPH (64 km/h)
SECOND to FIRST	20 MPH (32 km/h)

F-150-350

4-Speed Manual Transmission: Without Overdrive

Upshifts When Accelerating**		
Shift from	Transfer Case Position	
	2H or 4H	4L
FIRST to SECOND**	10 MPH (16 km/h)	4 MPH (6 km/h)
SECOND to THIRD	15 MPH (24 km/h)	6 MPH (10 km/h)
THIRD to FOURTH	25 MPH (40 km/h)	10 MPH (16 km/h)

Maximum Downshift Speeds		
Shift from	Transfer Case Position	
	2H or 4H	4L
FOURTH to THIRD	55 MPH (88 km/h)	21 MPH (39 km/h)
THIRD to SECOND	30 MPH (48 km/h)	11 MPH (18 km/h)
SECOND to FIRST	0 MPH (0 km/h)	0 MPH (0 km/h)

*Downshift at lower speeds when driving on slippery surfaces.

**If your vehicle is equipped with an Upshift Indicator, shift at speeds indicated when engine is warmed up.

SHIFT SPEEDS — CONT'D

F-150-350

4-Speed Overdrive Manual Transmission

Upshifts When Accelerating**	
Shift from	At this speed
FIRST to SECOND	15 MPH (24 km/h)
SECOND to THIRD	25 MPH (40 km/h)
THIRD to OVERDRIVE	40 MPH (64 km/h)

Maximum Downshift Speeds*	
Shift from	At or below this speed
OVERDRIVE to THIRD	55 MPH (88 km/h)
THIRD to SECOND	35 MPH (56 km/h)
SECOND to FIRST	20 MPH (32 km/h)

*Downshift at lower speeds when driving on slippery surfaces.

**If your vehicle is equipped with an Upshift Indicator, shift at speeds indicated when engine is warmed up.

Bronco

4-Speed Manual Transmissions: Without Overdrive

Upshifts When Accelerating		
Shift from	Transfer Case Position	
	2H or 4H	4L
FIRST to SECOND**	10 MPH (16 km/h)	4 MPH (6 km/h)
SECOND to THIRD	15 MPH (24 km/h)	6 MPH (10 km/h)
THIRD to FOURTH	25 MPH (40 km/h)	10 MPH (16 km/h)

Maximum Downshift Speeds		
Shift from	Transfer Case Position	
	2H or 4H	4L
FOURTH to THIRD	55 MPH (88 km/h)	21 MPH (34 km/h)
THIRD to SECOND	30 MPH (48 km/h)	11 MPH (18 km/h)
SECOND to FIRST	0 MPH (0 km/h)	0 MPH (0 km/h)

**Driving from a standing position in SECOND gear is recommended in moving a vehicle with a manual 4-speed transmission unless the vehicle has a significant load or is on a significant grade, in which case FIRST gear should be used.

SHIFT SPEEDS — CONT'D

Bronco II — 2.8L Engine

4-Speed Overdrive Manual Transmission

UPSHIFTS: NORMAL ACCELERATION		
Gear Change	2H or 4H Shift Speed	4L Shift Speed
First to Second	15 mph (24 km/h)	6 mph (9 km/h)
Second to Third	25 mph (40 km/h)	10 mph (16 km/h)
Third to Fourth	40 mph (64 km/h)	16 mph (25 km/h)
*Fourth to Fifth	45 mph (72 km/h)	18 mph (28 km/h)
UPSHIFTS: CRUISING CONDITIONS (RECOMMENDED FOR BEST FUEL ECONOMY)		
Gear Change	2H or 4H Shift Speed	4L Shift Speed
First to Second	15 mph (24 km/h)	6 mph (9 km/h)
Second to Third	20 mph (32 km/h)	8 mph (13 km/h)
Third to Fourth	29 mph (46 km/h)	11 mph (18 km/h)
*Fourth to Fifth	45 mph (72 km/h)	18 mph (28 km/h)
MAXIMUM DOWNSHIFT SPEEDS		
Gear Change	2H or 4H Shift Speed	4L Shift Speed
*Fifth to Fourth	55 mph (88 km/h)	22 mph (35 km/h)
Fourth to Third	45 mph (72 km/h)	18 mph (28 km/h)
Third to Second	35 mph (56 km/h)	14 mph (22 km/h)
Second to First	20 mph (32 km/h)	8 mph (12 km/h)

*When equipped with manual 5-speed overdrive transmission.

E-150-350

3-Speed Manual Transmission

Upshifts When Accelerating		
Shift from	At Part Throttle	At Full Throttle
FIRST to SECOND	15 MPH (24 km/h)	30 MPH (48 km/h)
SECOND to THIRD	25 MPH (40 km/h)	45 MPH (72 km/h)
Maximum Downshift Speed*		
Downshift from	At or below	
THIRD to SECOND	40 MPH (64 km/h)	
SECOND to FIRST	20 MPH (32 km/h)	

*Downshift at lower speeds when driving on slippery surfaces.

SHIFT SPEEDS — CONT'D

E-150-350

4-Speed Overdrive Manual Transmission

Upshifts When Accelerating	
Upshift from	At this speed
FIRST to SECOND	15 MPH (24 km/h)
SECOND to THIRD	25 MPH (40 km/h)
THIRD to OVERDRIVE	40 MPH (64 km/h)

Maximum Downshift Speeds*	
Downshift from	At or below
OVERDRIVE to THIRD	55 MPH (88 km/h)
THIRD to SECOND	35 MPH (56 km/h)
SECOND to FIRST	20 MPH (32 km/h)

*Downshift at lower speeds when driving on slippery surfaces.

Powertrain — Manual Transmission

GEAR RATIOS — ALL VEHICLES

Major Transmission Specifications

Gear Ratio [To 1]

(See Individual Truck Section for Availability)

Gear	3-Speed Manual			4-Speed Manual				
	Econoline Van	F-Series		Ranger (2) 2.0L I-4 2.3L I-4 2.8L I-4		F-Series & Bronco		
		4.9L I-6 (1) 5.0L V-8	4.9L I-6 (w/2.47 Axle Ratio)	Bronco II (2) 2.8L V-6		New Process 435(2)	Warner T-18	
				Ranger (2) 2.8L V-6				
				1st	3.26	3.26	2.99	
2nd	1.91	1.91	1.75	2.08	2.46	3.34	3.09	3.03
3rd	1.00	1.00	1.00	1.39	1.51	1.79	1.68	1.79
4th	—	—	—	1.00	1.00	1.00	1.00	1.00
5th	—	—	—	—	—	—	—	—
Reverse	3.46	3.46	3.17	3.39	3.39	8.26	7.44	5.63

Gear	4-Speed Manual Overdrive			5-Speed Manual Overdrive		Automatic		
						3-Speed		4-Speed Overdrive
	Econoline Van & Club Wagon	Bronco, F-150/250		Ranger, Bronco II 2.0L I-4 2.3L I-4 2.8L V-6	Ranger 4x2	Ranger 4x2	Ranger 4x4, F-Series, Bronco, Econoline Van & Club Wagon, Bronco II	F-Series, Econoline Van & Club Wagon
		4.9L I-6 (3) 5.0L V-8	4.9L I-6 (4) 5.8L V-8					
1st	3.25	3.25	3.01	3.96	2.26	2.47	2.46	2.40
2nd	1.92	1.92	1.78	2.08	2.40	1.47	1.46	1.46
3rd	1.00	1.00	1.00	1.39	1.51	1.00	1.00	1.00
4th	.78	.71	.72	1.00	1.00	—	—	.66
5th	—	—	—	.84	.87	—	—	—
Reverse	3.25	3.25	3.01	3.39	4.02	2.11	2.18(5)	2.00

(1) Used with all axle ratios except 2.47.

(2) Not available with PTO installation.

(3) Used with all axle ratios except 2.47 and 3.00.

(4) Used only with 2.47 axle ratio.

(5) 3.19 with some (LPO) automatic transmissions for use with 4.9L I-6 and 5.0L V-8 engines.

SERVICE SPECIFICATIONS

Ranger — Gasoline Engines

4-Speed Transmission Inspection Standards

Component	Tolerance	
	Inches	Millimeters
Mainshaft Runout Not to Exceed	0.0012	0.03
Shift Fork Shaft to Control Lever Not to Exceed	0.031	0.8
Shift Fork to Clutch Sleeve Not to Exceed	0.020	0.5
Synchronizer Ring to Conical Face of Gear	0.031	0.8

4-Speed Transmission Assembly Standards

Component	Tolerance	
	Inches	Millimeters
Mainshaft Thrust Play — Difference between the depth of mainshaft bore in bell housing and the mainshaft height in case.	0-0.0039	0-0.1
Countershaft Thrust Play — Difference between the depth of countershaft bearing bore and bearing height.	0-0.0039	0-0.1
Third Speed Synchronizer Key to Synchronizer Ring Slot — Transmission partly assembled. Transmission third gear. (Gasoline Engines Only)	0.026-0.079	0.66-2.0
Mainshaft Ring Bearing — Clearance between thrust washer and snap ring. Transmission partly assembled.	0-0.0039	0-0.1

3.03 3-Speed Transmission

Adjustments

Transmission	Inch	mm
End Play — Reverse Idler	0.004-0.018	0.102-0.457
End Play — Countershaft Gear	0.004-0.018	0.102-0.457

Warner T-18 4-Speed Transmission Adjustments

Second Speed Gear End Play 0.127-0.609mm
(0.005-0.024 inch)

New Process 435 4-Speed Transmission Adjustments

Third/Fourth Speed Synchronizer Clearance 1.77-2.41mm
(0.070-0.095 inch)

Input Shaft End Play 0.177-0.355mm
(0.007-0.014 inch)

SERVICE SPECIFICATIONS — CONT'D

Ranger — Gasoline Engines

5-Speed Transmission Inspection Standards

Component	Tolerance	
	Inches	Millimeters
Mainshaft Runout Not To Exceed	0.0012	0.3
Shift Fork Shaft To Control Lever Not To Exceed	0.031	0.8
Shift Fork To Clutch Sleeve Not To Exceed	0.020	0.5
Synchronizer Ring To Conical Face of Gear Not To Exceed	0.031	0.8

Ranger — Gasoline Engine

5-Speed Transmission Assembly Standards

Component	Tolerance	
	Inches	Millimeters
Mainshaft Thrust Play — Difference between the depth of mainshaft bore in bell housing and the mainshaft bearing height in case.	0-0.0039	0-0.1
Countershaft Thrust Play — Difference between the depth of countershaft bearing bore and bearing height.	0-0.0039	0-0.1
Countershaft Rear Bearing — Clearance between snap ring and rear bearing.	0-0.0059	0-0.15
Third Speed Synchronizer Key to Synchronizer Ring Slot — Transmission partly assembled. Transmission third gear.	0.026-0.079	0.66-2.0
Mainshaft Ring Bearing — Clearance between thrust washer and snap ring. Transmission partly assembled.	0-0.0039	0-0.1

SERVICE SPECIFICATIONS — CONT'D

Single Rail Overdrive Four-Speed Transmission Adjustments

First Gear End Play.....	0.127-0.609mm (0.005-0.024 inch)
Second Gear End Play.....	0.076-0.533mm (0.003-0.021 inch)
OD Gear End Play.....	0.228-0.584mm (0.009-0.023 inch)
Countershaft Gear End Play	0.601-0.457mm (0.004-0.018 inch)

NOTE: When measuring end play in an assembled transmission, output shaft end play must be subtracted from measured gear end play to obtain actual gear end play.

Four Speed Overdrive

Transmission Component End Play

Component	Tolerance	
	Inches	Millimeters
Cluster Gear to Case	.004-.018	.101-.457
Reverse Idler Gear to Case	.004-.018	.101-.457

Torque Specifications

Ranger — Gasoline Engines

Four Speed Transmission

Attachment	Torque	
	ft-lb	N-m
Cap — Shift Rail Detent Spring	29-43	40-58
Nut — Main Shaft Gear Retaining — Gasoline Engine — Diesel Engine	145-203	197-275
	116-174	160-240
Pivot — Clutch Release Lever	23-34	32-46
Plug — Interlock Pin Bore (Gasoline Engines Only)	7.5-11.0	11-14
Plug — Drain	29-43	40-58
Plug — Filler	18-29	25-39
Switch — Back-Up Lamp	22-29	30-39
Bolt — Control Lever End to Control Lever (Diesel Engine Only)	20-25	28-34
Nut/Bolt Size		
6 mm	5-7.5	7-11
8 mm	12-17	17-23
10 mm	23-34	32-45
12 mm	41-59	56-79

TORQUE SPECIFICATIONS — CONT'D

E, F-150-350, Bronco General Transmission Service

Description	Size	Torque Limits	
		(ft-lb)	N-m
U-Joint Flange Nut	1.00-20	110-150	150-203
Transmission Output Shaft	1.25-18	350-420	475-569

Unless otherwise specified, the following torque ranges are to be used for fitting or fastener diameters as indicated.

Bolt or Nut Size (in)	Torque Limits	
	(in-lb)	N-m
1/4	85-115	9.7-12.5
	(ft-lb)	
5/16	12-17	17-23
3/8	31-42	43-56
7/16	50-70	68-94
1/2	75-105	102-142
9/16	110-150	150-203
5/8	150-205	204-277
3/4	220-300	299-406
7/8	360-480	489-650
1.0	540-730	733-989

3.03 Three Speed Transmission

Item	Torque	
	(ft-lb)	N-m
Input Shaft Gear Bearing Retainer to Transmission Case	30-36	41-48
Transmission to Flywheel Housing	42-50	57-67
Transmission Cover to Transmission Case	20-25	28-33
Speedometer Cable Retainer to Transmission Extension	3-4.5	4.7-6.5
Transmission Extension to Transmission Case	42-50	57-67
Flywheel Housing to Engine	40-50	55-67
Back-Up Lamp Switch	8-12	11-16
Gear Shift to Cam & Shaft Assembly Lock Nuts	18-23	25-31
U-Joint Flange to Output Shaft	60-80	82-108
Filler Plug	10-20	14-27
Shifter Fork Set Screw	10-18	14-24
Rear Support to Frame	48-65	65-88

Powertrain — Manual Transmission

TORQUE SPECIFICATIONS — CONT'D

Ranger — Gasoline Engine

Five Speed Transmission

Description	N·m	ft·lb
Bearing Cover Attaching Bolts	56-79	41-59
Mainshaft Locknut	156-233	115-172
Blind Covers Attaching Bolts	32-45	23-34
Idle Shaft Capscrew	56-79	41-59
Extension Housing Attaching Bolts and Nuts	82-108	60-80
Transmission Case Cover	32-45	23-34
Filler Plugs	25-39	18-29

Powertrain — Manual Transmission

TORQUE SPECIFICATIONS — CONT'D

Warner T18 — Transmission

Description	Size	Torque Limits	
		ft-lb	N-m
Back Up Light Switch	9/16-	15-25	20-47
Clutch Housing to Transmission Mounting Bolts	7/16-14	35-50	47-67
Case Cover	3/8-16	25-35	34-47
Countershaft Rear Retainer	3/8-16	25-35	34-47
Drain Plug	3/4-14	25-40	34-54
Filler Plug	3/4-14	25-40	34-54
Output Shaft Flange Nut	3/4-20	75-110	102-149
Mainshaft Rear Retainer	3/8-16	25-35	34-47
	1/2-13	40-50	54-67
P.T.O. Cover Bolt	3/8-16	25-35	34-47
Reverse Idler Shaft/Countershaft Locking Bolt	3/8-16	25-35	34-47
Front Bearing Retainer to Case	5/16-18	10-15	14-20
Clutch Housing to Engine Block	7/16-14	40-50	54-67

Warner T19B Transmission

Transmission	N-m	ft-lb
Transmission to Flywheel Housing	51-56	37-42
Gear Shift Housing to Case	34-47	25-35
Speedometer Cable Retainer to Output Shaft Bearing Retainer	4.5-6	3-4.5
Output Shaft Bearing Retainer to Case	48-61	34-45
Flywheel Housing to Engine	55-67	40-50
Filler Plug	34-54	25-40
Drain Plug	34-54	25-40
Output Shaft Flange Nut	102-149	75-115
Countershaft and Reverse Idler Shaft Retainer Bolt	34-47	25-35
Power Take Off Cover	34-47	25-35
Input Shaft Bearing Retainer	21-33	15-25

Powertrain — Manual Transmission

TORQUE SPECIFICATIONS — CONT'D

New Process 435 Four Speed Transmission

Description	Size	Torque Limits	
		ft-lb	N-m
Back-Up Lamp Switch	9/16-18	20-30	28-54
Bell Housing Mounting Bolts	9/16-12	70-110	95-149
Case Cover	3/8-16	20-40	28-54
Countershaft Rear Retainer	3/8-16	20-40	28-54
Drain Plug	3/4-14	25-35	34-47
Filler Plug	3/4-14	25-35	34-47
Flange Nut	3/4-20	75-110	102-149
Mainshaft Rear Retainer	3/8-16	35-45	48-61
P.T.O. Cover Bolt	3/8-16	12-18	17-24
Reverse Idler Shaft Locking Bolt	3/8-16	20-40	28-54
Input Shaft Retainer to Case	5/16-18	25-35	34-47

TORQUE SPECIFICATIONS — CONT'D

Single Rail Overdrive Four Speed Overdrive Transmission

Application	Bolt	Nut	Tightening Torque Ft-Lb (N-m)	Application	Bolt	Nut	Tightening Torque Ft-Lb (N-m)
Input Shaft Bearing Retainer	5/16	Case	19-25 (26-33)	Pin — Reverse Gear Fork Pivot	M16-1.5	Case	15-25 (21-33)
Extension Assembly	7/16-14	Case	42-50 (56-67)	Turret Assembly	M8-1.25	Extension	8-12 (11-16)
Case Access Cover	5/16-18	Case	20-25 (28-33)	Service I.D.	#6-32	Case	Seat Firmly
Filler Plug	1/2-14 U.S. Pipe Thread	Case	10-20 (14-27)	Tag Screw Detent Bolt	Self-Tapping 3/8-16	Case	10-15 (14-20)
Back Up Lamp Switch	9/16-18	Turret Cover Assy.	8-12 (11-16)				

Four Speed Overdrive Transmission

Transmission

Application	Torque — 4-Speed	
	(ft-lb)	N-m
Input Shaft Bearing Retainer to Case Bolt	19-25	26-33
Extension Housing to Case Bolt	42-50	57-67
Access Cover to Case Screw	20-25	28-33
Outer Gear Shift Levers to Cam and Shaft Nut	18-23	25-31
Filler Plug to Case	10-20	14-27
Detent Bolt to Case	10-15	14-20

Shifter

Description	Size	Torque	
		(ft-lb)	N-m
Shift control upper mounting bolt	7/16-14 x 3 hex head	20-30	28-40
Shift control lever mounting bolt	3/8-16 x 2.75 UBS hex head	20-30	28-40
Transmission shift control rod to shift	5/16-18 nut and washer assembly	10-20	14-27
Control lever attaching nuts		10-20	14-27

Powertrain — 4x4 Transfer Case

TORQUE SPECIFICATIONS — CONT'D

Borg-Warner 13-50 Transfer Case — Ranger (4x4)

Description	Torque	
	N-m	ft-lb
Breather Vent	8-19	6-14
Case to Cover Bolts	31-41	23-30
Drain and Fill Plug	19-30	14-22
Four-Wheel Drive Indicator Switch	34-47	25-35
Front and Rear Driveshaft Bolts	16-20	12-15
Shift Control Bolts — Large	95-122	70-90
Shift Control Bolts — Small	42-57	31-42
Shift Shaft and Shift Cam Set Screw	6.8-9.5	5-7
Skid Plate to Frame Bolt	30-41	22-30
Transfer Case to Transmission Adapter	34-47	25-35
Upper Shift Control Lever and Heat Shield Bolts	37-50	27-37
Yoke Nut	163-203	120-150
	N-m	in-lb
Oil Pump Bolts	4.0-4.5	36-40
Speedometer Screw	2.3-2.8	20-25

NPG 208 Transfer Case — F-150-250 (4x4) Bronco

Description	Torque Limits	
	N-m	ft-lb
Lock Plate Bolts	27-41	20-30
Case Attaching Bolts	28-33	20-25
Rear Retainer Bolts	28-33	20-25
Four-Wheel Drive Indicator Switch	20-33	15-25
Poppet Ball Screw	20-33	15-25
Drain and Filler Plugs	41-54	30-40
Shifter Shaft Nut	28-33	20-25
Yoke Nut	177-271	130-200

TORQUE SPECIFICATIONS — CONT'D

Borg-Warner 1345 Transfer Case — F-250-350 (4x4)

Description	Torque Limits	
	N·m	ft·lb
Case Half Attaching Bolts	48-54	35-40
Four-Wheel Drive Indicator Switch	11-16	8-12
Front and Rear Output Yokes to Transfer Case	163-203	120-150
Drain Plug	13-24	14-22
Fill Plug	21-33	15-25
Transfer Case to Transmission Adapter	34-58	25-43
Heat Shield to Transfer Case Upper Bolt	55-61	40-45
Skid Plate to Frame	20-27	15-20
Front Driveshaft to Front Output Yoke	163-203	120-150
Rear Driveshaft to Rear Output Yoke	163-203	120-150

Powertrain — Automatic Transmission

Identification

Safety Compliance Certification Label

DATE:		MFD. BY FORD MOTOR CO. IN U.S.A.		GVWR:	
FRONT GAWR:		WITH TIRES RIMS		REAR GAWR:	
				WITH TIRES RIMS	
AT	PSI COLD			AT	PSI COLD
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE					
Vehicle Identification No.					
Type					
EXTERIOR PAINT COLORS					DSO
WB	Type GVW	Body	Trans	Axle	
			K		

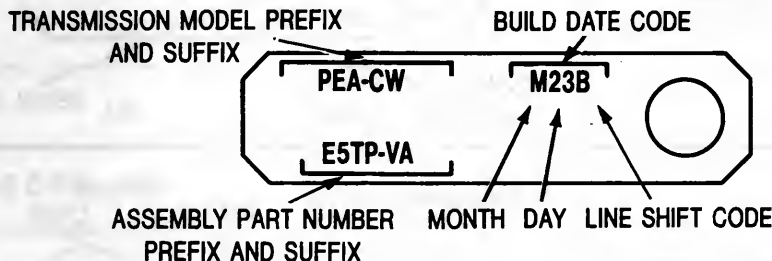
TRANSMISSION CODE

Transmission Codes

Code	Description
V	Auto A4LD
W	Automatic C5 (Ranger, F-150)
K	Automatic C6 (F-150/350)
K	Automatic C6 (Bronco)
G	Automatic C6 (Econoline)
T	Automatic Overdrive (AOD)

Transmission Identification Tag

The identification tag is located under the lower front intermediate servo cover bolt. The tag shows the model prefix and suffix, assembly part numbers, and the built date code. The first line on the tag shows the transmission model prefix and suffix. A number appearing after the suffix indicates that internal parts have been changed after initial production start up. For example, a PEA-CP model transmission that has been changed internally would read PEA-CP1. Both transmissions are basically the same, but some service parts in the PEA-CP1 transmission are slightly different than the PEA-CP transmission. Therefore, it is important that the codes on the transmission identification tag be checked when ordering parts or making inquiries about the transmission.



TAG LOCATED UNDER LOWER FRONT INTERMEDIATE SERVO COVER BOLT

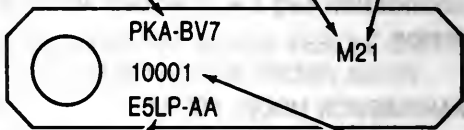
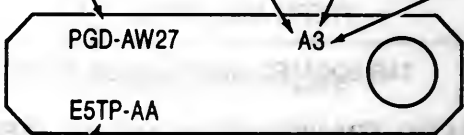

AUTOMATIC TRANSMISSION MODEL IDENTIFICATION

Models Are Identified by a Service Identification Tag Affixed to the Assembly. Tags Are Located and Contain Information as Follows:

BASIC MODEL	TAG LOCATION	INFORMATION (TYPICAL)
C5	UNDER LOWER INTERMEDIATE SERVO COVER BOLT.	
A4LD	ATTACHED TO LOWER LEFT HAND EXTENSION ATTACHING BOLT.	

AUTOMATIC TRANSMISSION MODEL IDENTIFICATION — CONT'D

Models Are Identified by a Service Identification Tag Affixed to the Assembly.
Tags Are Located and Contain Information as Follows:

<u>BASIC MODEL</u>	<u>TAG LOCATION</u>	<u>INFORMATION (TYPICAL)</u>
AOD	UPPER RIGHT HAND EXTENSION TO CASE ATTACHING BOLT.	<p>TRANSMISSION MODEL MONTH BUILD DATE DAY</p>  <p>ASSEMBLY PART NO. PREFIX AND SUFFIX SERIAL NO.</p>
C6	UNDER LOWER FRONT INTER-MEDIATE SERVO COVER BOLT.	<p>TRANSMISSION MODEL MONTH DAY BUILD DAY CODE</p>  <p>ASSEMBLY PART NO. PREFIX AND SUFFIX</p>
A4LD	ATTACHED TO LOWER LEFT HAND EXTENSION ATTACHING BOLT.	<p>TRANSMISSION MODEL LINE SHIFT CODE</p>  <p>BUILD DATE CODE YEAR MONTH DAY</p>

Transmission Tag — Transmission Identification

PTC-5-009-A

Powertrain — Automatic Transmission

GEAR RATIOS — ALL VEHICLES

Gear	C-5, C-6, Ranger, F-Series, Bronco, Econoline	AOD F-Series
1st	2.46	2.40
2nd	1.46	1.46
3rd	1.00	1.00
OD	—	.66
Reverse	2.18	2.00

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

A4LD Transmission

2.8L-2V 3.45, 3.73, 4.10 A/R

Ranger/Aerostar 4x2

50S/Can./Alt.

85GT-AEA, ALA, AMA, BCA

				COLUMN NUMBER				
				1	2	3	4	5
Throttle	Range	Shift	OPS — R.P.M.					
Closed Throttle 10-15in. hg. Vacuum	Ⓓ, D	1-2	458-712	9-15	10-16	8-14	9-14	8-13
	Ⓓ, D	2-3	814-1221	16-26	17-27	15-24	16-25	15-23
	Ⓓ	3-4	1781-2290	37-48	38-50	34-44	36-46	33-43
	Ⓓ, D	CL	1578-1985	32-41	34-43	30-38	31-40	29-37
	Ⓓ, D	CU	See Note 1					
	Ⓓ	4-3	865-1170	18-24	18-26	16-23	17-24	16-22
	Ⓓ, D	3-2	458-763	9-16	10-17	8-15	9-15	8-14
	Ⓓ, D	2-1	356-560	7-12	7-12	6-11	7-11	6-11
	1	2-1	1527-1832	31-38	33-40	29-35	30-37	28-34
To Detent 2.0in. hg. Vacuum	Ⓓ, D	1-2	1476-1871	30-37	32-39	28-34	30-36	27-33
	Ⓓ, D	2-3	2087-2392	43-50	45-52	40-46	42-48	38-44
	Ⓓ	3-4*	2372-2677	49-56	51-58	46-51	48-54	44-50
	Ⓓ, D	CL*	1990-2296	41-48	43-50	38-44	40-47	36-43
	Ⓓ, D	CU	See Note 1					
	Ⓓ	4-3	2698-3003	56-63	59-66	51-58	54-60	50-56
	Ⓓ, D	3-2	1680-1985	34-41	36-43	32-38	34-40	31-37
Through Detent WOT 2.0in. hg. Vacuum	Ⓓ, D	1-2	1781-2087	37-44	38-46	34-40	36-42	33-39
	Ⓓ, D	2-3	3003-3308	62-69	65-73	57-64	61-67	56-61
	Ⓓ, D	CL	See Note 1					
	Ⓓ, D	CU	See Note 1					
	Ⓓ, D	3-2	2850-3156	59-66	62-69	54-61	58-64	53-59
	Ⓓ, D	3-1	1578-1883	32-39	34-41	30-36	32-38	29-35

* Check 3-4 upshift and converter clutch lock up at 7.0 in hg vacuum.

CL — Converter Clutch Lock Up

CU — Converter Clutch Unlock

NOTE:

1 The converter clutch upshift/downshift is scheduled hydraulically but can be overridden electronically. The converter clutch is prevented from engaging or is disengaged during the following driving modes:

- engine coolant below 128°F or above 240°F
- application of brakes
- closed throttle
- heavy or W.O.T. throttle accelerations
- quick tip-ins
- quick tip-outs

- when the actual engine speed is below a certain value at lower vacuums (this ensures all 4-3 torque demands will be made on an unlocked converter).

	TIRE SIZE	USE COLUMN NUMBER		
		3.45	3.73	4.10
Axle Ratio				
	P185/75R14SL	1	3	
	P205/75R14SL	2	4	5
	P195/75R14SL	2	4	
	P215/75R14SL	2	4	5

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

A4LD Transmission

2.3L (EFI) 3.73 and 4.10 A/R

Ranger/Aerostar

85GT-ABA, ACA

				COLUMN NUMBER				
				1	2	3	4	5
Throttle	Range	Shift	OPS — R.P.M.					
Closed Throttle 10-15in. hg. Vacuum	Ⓓ, D	1-2	509-764	9-15	10-16	8-14	9-14	
	Ⓓ, D	2-3	713-1069	13-21	14-22	12-19	13-20	
	Ⓓ	3-4	1832-2240	35-43	37-45	32-39	33-41	
	Ⓓ, D	CL	2036-2494	39-48	41-50	35-44	37-46	
	Ⓓ, D	CU	See Note 1					
	Ⓓ	4-3	814-1120	15-22	16-23	14-20	15-21	
	Ⓓ, D	3-2	509-814	9-16	10-16	8-14	9-15	
	Ⓓ, D	2-1	356-560	6-11	7-11	6-10	6-11	
	1	2-1	1476-1781	28-34	29-36	25-31	27-33	
To Detent 1.5in. hg. Vacuum	Ⓓ, D	1-2	1425-1731	27-33	28-35	25-30	26-32	
	Ⓓ, D	2-3	2036-2341	39-45	41-47	35-41	37-43	
	Ⓓ	3-4*	2499-2804	48-54	50-56	43-49	45-52	
	Ⓓ, D	CL*	2433-2738	46-53	49-55	42-48	44-50	
	Ⓓ, D	CU	See Note 1					
	Ⓓ	4-3	2647-2952	50-57	53-60	46-52	48-54	
	Ⓓ, D	3-2	1629-1934	31-37	32-39	28-34	29-36	
Through Detent WOT 1.0in. hg. Vacuum	Ⓓ, D	1-2	1832-2138	35-41	37-43	32-38	33-39	
	Ⓓ, D	2-3	3156-3461	60-67	63-70	55-61	58-64	
	Ⓓ, D	CL	See Note 1					
	Ⓓ, D	CU	See Note 1					
	Ⓓ, D	3-2	2952-3258	56-63	59-66	51-57	54-60	
	Ⓓ, D	3-1	1527-1832	29-35	30-37	26-32	28-34	

* Check 3-4 upshift and converter clutch lock up at 7.0 in hg vacuum.

CL — Converter Clutch Lock Up

CU — Converter Clutch Unlock

NOTE:

1 The converter clutch upshift/downshift is scheduled hydraulically but can be overridden electronically. The converter clutch is prevented from engaging or is disengaged during the following driving modes:

- engine coolant below 128°F or above 240°F
- application of brakes
- closed throttle
- heavy or W.O.T. throttle accelerations
- quick tip-ins
- quick tip-outs

- when the actual engine speed is below a certain value at lower vacuums (this ensures all 4-3 torque demands will be made on an unlocked converter).

Axle Ratio	TIRE SIZE	USE COLUMN NUMBER		
		3.73	4.10	
	P185/75R14SL	1	3	
	P195/75R14SL	2	4	
	P205/75R14SL	2	4	
	P215/75R14SL	2	4	

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

A4LD Transmission
Ranger 4x4/Bronco II
50S/Can/Alt
85GT-AGA, BAA

				COLUMN NUMBER				
				1	2	3	4	5
Throttle	Range	Shift	OPS — R.P.M.					
Closed Throttle 10-15in. hg. Vacuum	Ⓓ, D	1-2	458-712	8-14	9-14	8-13		
	Ⓓ, D	2-3	814-1221	15-24	16-25	15-23		
	Ⓓ	3-4	1781-2290	34-44	36-46	33-43		
	Ⓓ, D	CL	1578-1985	30-38	31-40	29-37		
	Ⓓ, D	CU	See Note 1					
	Ⓓ	4-3	865-1170	16-23	17-24	16-22		
	Ⓓ, D	3-2	458-763	8-15	9-15	8-14		
	Ⓓ, D	2-1	356-560	6-11	7-11	6-11		
To Detent 2.0in. hg. Vacuum	1	2-1	1527-1832	29-35	30-37	28-34		
	Ⓓ, D	1-2	1476-1781	28-34	30-36	27-33		
	Ⓓ, D	2-3	2087-2392	40-46	42-48	38-44		
	Ⓓ	3-4*	2372-2677	46-51	48-54	44-50		
	Ⓓ, D	CL*	1990-2296	38-44	40-47	36-43		
	Ⓓ, D	CU	See Note 1					
	Ⓓ	4-3	2698-3003	51-58	54-60	50-56		
Through Detent WOT 2.0in. hg. Vacuum	Ⓓ, D	3-2	1680-1985	32-38	34-40	31-37		
	Ⓓ, D	1-2	1781-2087	34-40	36-42	33-39		
	Ⓓ, D	2-3	3003-3308	57-64	61-67	56-61		
	Ⓓ, D	CL	See Note 1					
	Ⓓ, D	CU	See Note 1					
	Ⓓ, D	3-2	2850-3156	54-61	58-64	53-59		
	Ⓓ, D	3-1	1578-1883	30-36	32-38	29-35		

* Check 3-4 upshift and converter clutch lock up at 7.0 in hg vacuum.

CL — Converter Clutch Lock Up

CU — Converter Clutch Unlock

NOTE:

1 The converter clutch upshift/downshift is scheduled hydraulically but can be overridden electronically. The converter clutch is prevented from engaging or is disengaged during the following driving modes:

- engine coolant below 128°F or above 240°F
- application of brakes
- closed throttle
- heavy or W.O.T. throttle accelerations
- quick tip-ins
- quick tip-outs

- when the actual engine speed is below a certain value at lower vacuums (this ensures all 4-3 torque demands will be made on an unlocked converter).

Axle Ratio	TIRE SIZE	USE COLUMN NUMBER		
		3.73	4.10	
	P185/75R14SL	1		
	P195/75R14SL	2		
	P205/75R14SL	2	3	
	P215/75R14SL	2	3	

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C5 Automatic Transmission
 4.9L 3.08 A/R
 F150 50S
 PEA-CU

				COLUMN NUMBER			
				1	2	3	4
Throttle	Range	Shift	OPS — R.P.M.				
Closed (Above 17" Vacuum)	D	1-2	405-449	10-11	10-12	10-12	
	D	2-3	574-776	14-19	15-21	14-20	
	D	3-1, 2-1	331-366	8-9	8-9	8-10	
	1	2-1	1004-1192	25-30	27-32	25-31	
To Detent (Torque Demand)	D	1-2	724-995	18-25	19-27	18-26	
	D	2-3	1341-1536	36-38	36-41	34-40	
	D	3-2	1070-1259	26-31	29-34	27-33	
Through Detent (W.O.T.)	D	1-2	1373-1598	34-40	37-43	35-41	
	D	2-3	2413-2681	60-67	65-73	62-69	
	D	3-2	2170-2324	54-58	58-63	56-60	
	D	3-1, 2-1	998-1218	24-30	27-33	25-32	

	TIRE SIZE	USE COLUMN NUMBER		
Axle Ratio		3.08		
	P195/75R15SL	1		
	P215/75R15SL	2		
	P235/75R15SL	3		

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C5 Automatic Transmission

5.0L — 3.08, A/R, F-150, 49S, PEA-CW

				COLUMN NUMBER			
				1	2	3	4
Throttle	Range	Shift	OPS-R.P.M.				
Closed (Above 17" Vacuum)	D	1-2	413-456	10-11	11-12	10-12	
	D	2-3	580-761	14-19	15-21	14-20	
	D	3-1, 2-1	331-366	8-9	8-10	8-9	
	1	2-1	1122-1320	28-33	30-36	28-34	
To Detent (Torque Demand)	D	1-2	964-1240	24-31	26-34	24-32	
	D	2-3	1600-1852	40-42	43-50	41-18	
	D	3-2	1459-1614	36-40	39-43	37-42	
Through Detent (W.O.T.)	D	1-2	1516-1755	37-44	41-48	39-45	
	D	2-3	2621-2901	65-72	71-79	67-75	
	D	3-2	2359-2516	58-63	63-68	60-65	
	D	3-1, 2-1	1110-1341	27-33	30-36	28-35	

		TIRE SIZE	USE COLUMN NUMBER	
Axle Ratio			3.08	
		P195/75R 15SL	1	
		P215/75R 15SL	2	
		P235/75R 15XL	3	

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission

Trans. Models: PGD-AW-EG-EK A18CS

				COLUMN NUMBER			
				1	2	3	4
Throttle	Range	Shift	OPS-R.P.M.				
Closed (Above 17" Vacuum)	D	1-2	270-560	7-15	7-14	6-13	6-12
	D	2-3	375-870	10-24	9-22	9-20	8-18
	D	3-1	270-330	7-9	7-8	6-8	6-8
	1	2-1	890-1260	24-34	22-32	20-29	19-26
To Detent (Torque Demand)	D	1-2	710-1310	19-35	18-33	16-30	15-27
	D	2-3	1260-1940	34-52	32-49	29-44	26-40
	D	3-2	600-1510	16-41	15-38	14-34	13-31
Through Detent (W.O.T.)	D	1-2	1250-1590	34-43	31-40	28-36	26-33
	D	2-3	2190-2570	59-69	55-64	50-58	46-54
	D	3-2	1990-2340	54-63	50-59	45-53	41-49
	D	3-1 2-1	840-1200	23-32	21-30	19-27	18-25

		TIRE SIZE	USE COLUMN NUMBER				
Axle Ratio			3.50	3.54	3.55	3.73	4.10
		P195/75R 15SL			3		
		P205/75R 15SL	3				
		P215/75R 15SL			3		
		P225/75R 15SL	3				
		P235/75R 15XL	2		2	2	4
		LT215/85R 16C		2	2	2	4
		LT215/85R 16D		2	2	2	3
		LT235/85R 16D			2	2	3
		LT235/85R 16E		1	2		
		7.50D x 16D		2			3
		7.50R x 16D			2	2	3
		8.00 x 16.5D		3	3	3	4
		8.75 x 16.5D		2	2	3	4
		8.75 x 16.5E		2	2	3	4
		8.75R x 16.5E		2	2	3	4
		9.50 x 16.5E		2		2	3
		9.50R x 16.5E		2		2	4

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PGD-AW-EG
(Altitude) A18CB

				COLUMN NUMBER			
				1	2	3	4
Throttle	Range	Shift	OPS-R.P.M.				
Closed (Above 17" Vacuum)	D	1-2	270-640	7-17	7-16	6-15	6-14
	D	2-3	375-930	10-25	9-3	9-21	8-19
	D	3-1	270-330	7-9	7-8	6-8	6-8
	1	2-1	890-1260	24-34	22-32	20-29	19-26
To Detent (Torque Demand)	D	1-2	770-1520	22-40	21-37	19-35	18-32
	D	2-3	1330-2330	35-63	33-59	30-53	27-50
	D	3-2	730-1640	21-45	20-42	18-38	18-35
Through Detent (W.O.T.)	D	1-2	1250-1630	34-45	31-42	28-38	26-35
	D	2-3	2200-2630	59-70	55-65	50-59	46-55
	D	3-2	1980-2380	54-64	50-60	45-54	41-50
	D	3-1 2-1	830-1230	23-32	21-30	19-27	18-25

Axle Ratio	TIRE SIZE	USE COLUMN NUMBER				
		3.50	3.54	3.55	3.73	4.10
	P195/75R 15SL			3		
	P205/75R 15SL	3				
	P215/75R 15SL			3		
	P225/75R 15SL	3				
	P235/75R 15XL	2		2	2	4
	LT215/85R 16C		2	2	2	4
	LT215/85R 16D		2	2	2	3
	LT235/85R 16D			2	2	3
	LT235/85R 16E		1	2		
	7.50D x 16D		2			3
	7.50R x 16D			2	2	3
	8.00 x 16.5D		3	3	3	4
	8.75 x 16.5D		2	2	3	4
	8.75 x 16.5E		2	2	3	4
	8.75 x 16.5E		2	2	3	4
	9.50 x 16.5E		2		2	3
	9.50 x 16.5E		2		2	4

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PGD-EV-EY
A36CW

				COLUMN NUMBER			
				1	2	3	4
Throttle	Range	Shift	OPS-R.P.M.				
Closed (Above 17" Vacuum)	D	1-2	270-620	7-16	6-15	6-13	6-13
	D	2-3	400-990	11-26	10-24	9-21	8-21
	D	3-1	270-330	7-9	6-8	6-7	6-7
	1	2-1	990-1380	26-36	24-33	21-30	21-29
To Detent (Torque Demand)	D	1-2	1130-1790	30-47	27-43	25-39	24-37
	D	2-3	1920-2820	51-74	46-67	42-63	40-59
	D	3-2	1380-2390	36-63	33-57	30-52	29-50
Through Detent (W.O.T.)	D	1-2	1510-1860	40-49	36-44	33-40	31-39
	D	2-3	2600-3020	68-79	62-72	57-66	54-63
	D	3-2	2270-2660	60-70	54-63	49-58	47-55
	D	3-1 2-1	970-1340	26-35	23-32	21-29	20-28

		TIRE SIZE	USE COLUMN NUMBER				
Axle Ratio			3.50	3.54	3.55	3.73	4.10
		P195/75R 15SL			3		
		P205/75R 15SL	3				
		P215/75R 15SL			3		
		P225/75R 15SL	2				
		P235/75R 15XL	2		2		
		LT215/85R 16C		1	1	2	3
		LT215/85R 16D		1	1	2	3
		LT235/85R 16D			1	1	3
		LT235/85R 16E		1	1	1	3
		7.50D x 16D		1			3
		7.50R x 16D			1	1	3
		8.00 x 16.5D		2	3	3	4
		8.75 x 16.5D		2	2	3	4
		8.75 x 16.5E		2	2	3	4
		8.75R x 16.5E		2	2	3	4
		9.50 x 16.5E		1		2	3
		9.50R x 16.5E		1		2	3

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PGD-EV-EY
(Altitude) A36CB

Throttle	Range	Shift	OPS-R.P.M.	COLUMN NUMBER			
				1	2	3	4
Closed (Above 17" Vacuum)	D	1-2	270-610	7-16	6-15	6-13	6-13
	D	2-3	400-980	11-26	10-24	9-21	8-21
	D	3-1	270-330	7-9	6-8	6-7	6-7
	1	2-1	990-1380	26-36	24-33	21-30	21-29
To Detent (Torque Demand)	D	1-2	1040-1820	27-48	25-43	22-39	22-38
	D	2-3	1780-2870	47-76	42-68	38-62	37-60
	D	3-2	1200-2450	32-64	29-58	26-53	25-51
Through Detent (W.O.T.)	D	1-2	1480-1890	39-50	35-45	32-41	31-39
	D	2-3	2560-3060	67-81	61-73	56-67	53-63
	D	3-2	2240-2700	59-71	53-64	49-59	47-56
	D	3-1 2-1	940-1360	25-36	22-32	20-30	20-28

Axle Ratio	TIRE SIZE	USE COLUMN NUMBER				
		3.50	3.54	3.55	3.73	4.10
	P195/75R 15SL			3		
	P205/75R 15SL	3				
	P215/75R 15SL			3		
	P225/75R 15SL	2				
	P235/75R 15XL	2		2		
	LT215/85R 16C		1	1	2	3
	LT215/85R 16D		1	1	2	3
	LT235/85R 16D			1	1	3
	LT235/85R 16E		1	1	1	3
	7.50D x 16D		1			3
	7.50R x 16D			1	1	3
	8.00 x 16.5D		2	3	3	4
	8.75 x 16.5D		2	2	3	4
	8.75 x 16.5E		2	2	3	4
	8.75R x 16.5E		2	2	3	4
	9.50 x 16.5E		1		2	3
	9.50R x 16.5E		1		2	3

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PGD-FB-FC
A29BS

				COLUMN NUMBER			
				1	2	3	4
Throttle	Range	Shift	OPS-R.P.M.				
Closed (Above 17" Vacuum)	D	1-2	270-420	7-11	7-11	6-9	6-10
	D	2-3	375-830	10-22	10-22	8-18	9-20
	D	3-1	270-330	7-9	7-9	6-7	6-8
	1	2-1	860-1200	22-31	23-33	19-27	21-29
To Detent (Torque Demand)	D	1-2	620-1310	16-34	17-36	14-29	15-31
	D	2-3	890-1780	23-46	24-48	20-40	21-42
	D	3-2	770-1380	20-36	21-37	17-31	18-33
Through Detent (W.O.T.)	D	1-2	1270-1590	33-41	34-43	28-35	30-38
	D	2-3	2190-2560	57-66	59-69	49-57	52-61
	D	3-2	2120-2470	55-64	57-67	47-55	51-59
	D	3-1 2-1	900-1220	23-31	24-33	20-27	21-29

TIRE SIZE		USE COLUMN NUMBER			
Axle Ratio		3.00	3.50		
	P205/75R 15SL	1	3		
	P225/75R 15SL	2	4		
	P235/75R 15XL	2	4		

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PJD-BA-BB-BC
10CZ

				COLUMN NUMBER				
				1	2	3	4	5
Throttle	Range	Shift	OPS-R.P.M.					
Closed (Above 17" Vacuum)	D	1-2	270-660	8-19	8-18	7-16	6-15	6-14
	D	2-3	375-880	11-26	10-25	10-23	9-20	8-18
	D	3-1	270-330	8-10	8-9	7-8	6-8	6-7
	1	2-1	880-1210	26-36	25-34	23-31	20-28	18-25
To Detent (Torque Demand)	D	1-2	1030-1550	31-46	29-43	26-40	23-35	21-32
	D	2-3	1700-2400	51-72	47-67	44-62	39-55	35-50
	D	3-2	960-1620	29-48	27-45	25-42	22-37	20-34
Through Detent (W.O.T.)	D	1-2	1320-1600	39-48	37-45	34-41	30-36	28-33
	D	2-3	2230-2560	65-76	61-71	56-66	50-58	46-53
	D	3-2	1940-2260	58-67	54-63	50-58	44-51	40-47
	D	3-1 2-1	870-1170	26-35	24-33	22-30	20-27	18-24

		TIRE SIZE	USE COLUMN NUMBER			
Axle Ratio			3.07	3.54	3.73	4.10
	LT215/85R 16C			3	4	5
	LT215/85R 16D			3	4	5
	LT235/85R 16D				3	4
	LT235/85R 16E	1		3	3	4
	7.50 x 16D			3		4
	7.50R x 16D				3	4
	8.00 x 16.5D			4		5
	8.75 x 16.5D			3		5
	8.75 x 16.5E	2		3		5
	8.75R x 16.5E	2		3		5
	9.50 x 16.5E			3	3	4
	9.50R x 16.5E	2		3	3	5

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission
Trans. Models: PJE-A-B-C
A31DS

				COLUMN NUMBER			
				1	2	3	4
Throttle	Range	Shift	OPS-R.P.M.				
Closed (Above 17" Vacuum)	D	1-2	270 Min.	8 Min.	7 Min.	6 Min.	6 Min.
	D	2-3	450 Min.	13 Min.	11 Min.	10 Min.	9 Min.
	D	3-1	270-330	8-10	7-8	6-8	6-7
	1	2-1	670-960	20-28	17-24	15-22	14-20
To Detent (Torque Demand)	D	1-2	940-1240	28-33	23-32	21-29	20-27
	D	2-3	1540-1840	45-54	39-46	35-42	32-40
	D	3-2	1050-1280	31-38	26-32	24-29	22-27
Through Detent (W.O.T.)	D	1-2	1080-1310	32-39	27-33	25-30	23-27
	D	2-3	1800-2030	53-60	45-51	41-46	38-42
	D	3-2	1680-1900	49-56	42-48	38-43	35-40
	D	3-1 2-1	750-1010	22-30	19-25	17-23	16-21

		TIRE SIZE	USE COLUMN NUMBER			
Axle Ratio			3.07	3.54	3.73	4.10
	P195/75R 15SL					
	P205/75R 15SL					
	P215/75R 15SL					
	P225/75R 15SL					
	P235/75R 15XL					
	LT215/85R 16C			2	3	4
	LT215/85R 16D			2	3	4
	LT235/85R 16D			2	2	3
	LT235/85R 16E	1		2	2	3
	7.50D x 16D			2		3
	7.50R x 16D				2	3
	8.00 x 16.5D			3	3	4
	8.75 x 16.5D			2	3	4
	8.75 x 16.5E	1		2	3	4
	8.75R x 16.5E	1		2	3	4
	9.50 x 16.5E			2	2	3
	9.50R x 16.5E	1		2	2	3

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

C6 Automatic Transmission

Trans. Models: PJE-B-C

(Altitude) A31DB

				COLUMN NUMBER			
				1	2	3	4
Throttle	Range	Shift	OPS-R.P.M.				
Closed (Above 17" Vacuum)	D	1-2	270 Min	8 Min	7 Min	6 Min	6 Min
	D	2-3	450 Min	13 Min	11 Min	10 Min	9 Min
	D	3-1	270-330	8-10	7-8	6-8	6-7
	1	2-1	670-960	20-28	17-24	15-22	14-20
To Detent (Torque Demand)	D	1-2	870-1260	26-37	22-32	20-29	18-26
	D	2-3	1440-1870	43-55	36-47	33-43	30-39
	D	3-2	1200-1650	35-49	30-41	27-38	25-34
Through Detent (W.O.T.)	D	1-2	1060-1330	31-39	27-33	24-30	22-28
	D	2-3	1770-2050	52-60	44-51	40-47	37-43
	D	3-2	1650-1920	49-52	42-48	38-43	35-40
	D	3-1 2-1	730-1020	22-30	19-25	17-23	16-21

		TIRE SIZE	USE COLUMN NUMBER			
Axle Ratio			3.07	3.54	3.73	4.10
		P195/75R 15SL				
		P205/75R 15SL				
		P215/75R 15SL				
		P225/75R 15SL				
		P235/75R 15XL				
		LT215/85R 16C		2	3	4
		LT215/85R 16D		2	3	4
		LT235/85R 16D		2	2	3
		LT235/85R 16E	1	2	2	3
		7.50D x 16D		2		3
		7.50R x 16D			2	3
		8.00 x 16.5D		3	3	4
		8.75 x 16.5D		2	3	4
		8.75 x 16.5E	1	2	3	4
		8.75R x 16.5E	1	2	3	4
		9.50 x 16.5E		2	2	3
		9.50R x 16.5E	1	2	2	3

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L Carburetor E150/E250 3.50/3.73 A/R

49S/Calif./Can. PKB-A

				COLUMN NUMBER					
				1	2	3	4	5	6
Throttle	Range	Shift	OPS — R.P.M.						
Closed Throttle See Note	Ⓓ, D	1-2	290-420	6-9	6-10	6-10	7-10	6-10	
	Ⓓ, D	2-3	650-810	14-18	15-19	15-19	16-20	15-19	
	Ⓓ	3-4	1470-1820	32-40	34-42	35-43	36-45	34-43	
	Ⓓ	4-3	1620-1270	35-28	37-30	38-30	40-31	38-30	
	Ⓓ, D	3-2	780-630	17-14	18-15	18-15	19-16	18-15	
	Ⓓ, D	2-1	370-230	8-5	8-5	8-5	9-6	8-5	
	1	3-1, 2-1	1100-730	24-16	25-17	26-17	27-18	25-17	
Part Throttle See Note	Ⓓ, D	1-2	590-860	13-19	13-20	14-20	14-21	13-20	
	Ⓓ, D	2-3	1180-1570	26-35	27-36	28-37	29-39	27-27	
	Ⓓ	3-4	1730-2300	38-51	40-53	41-55	42-57	40-54	
	Ⓓ	4-3	1750-1380	38-31	40-32	41-33	43-34	41-32	
	Ⓓ, D	3-2	1210-760	26-17	28-18	28-18	29-19	28-18	
	Ⓓ, D	2-1	640-420	14-9	14-10	15-10	15-10	15-10	
Wide Open See Note	Ⓓ, D	1-2	1220-1710	27-38	28-40	29-41	30-42	28-40	
	Ⓓ, D	2-3	2340-2690	51-60	54-63	55-64	57-66	55-63	
	Ⓓ, D	3-2	2250-1900	49-42	52-44	53-45	55-47	52-44	
	Ⓓ, D	2-1	1360-900	30-20	31-21	32-21	33-22	31-21	

Axle Ratio	TIRE SIZE	USE COLUMN NUMBER					
		3.50	3.55	3.73			
	P205/75R 15SL	1					
	P225/75R 15SL	2					
	P235/75R 15XL	3					
	LT215/85R 16D		4	5			
	8.00 x 16.5D		2	1			
	8.75 x 16.5E		3	2			

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L Carburetor 3.55 A/R, E150/250,
49S/Calif./Can., PKB-A

Throttle	Range	Shift	OPS — R.P.M.	COLUMN NUMBER					
				1	2	3	4	5	6
Closed Throttle See Note	Ⓓ, D	1-2	290-420	6-9	6-10	6-9	7-11	7-10	7-11
	Ⓓ, D	2-3	650-8110	14-18	15-19	14-18	16-21	16-20	16-21
	Ⓓ	3-4	1470-1820	32-41	34-42	31-39	38-47	36-45	38-47
	Ⓓ	4-3	1620-1270	36-28	38-30	35-28	42-33	40-31	41-33
	Ⓓ, D	3-2	780-630	17-14	18-14	16-14	20-16	19-16	20-16
	Ⓓ, D	2-1	370-230	8-5	8-5	8-5	9-6	9-6	9-6
	1	3-1, 2-1	1100-730	24-16	25-17	23-16	28-19	27-18	28-19
Part Throttle See Note	Ⓓ, D	1-2	590-860	13-19	13-20	12-19	15-22	14-21	15-22
	Ⓓ, D	2-3	1180-1570	26-35	27-37	35-34	30-41	29-39	30-41
	Ⓓ	3-4	1730-2300	38-51	40-54	37-50	44-60	42-57	44-59
	Ⓓ	4-3	1750-1380	39-30	41-32	37-30	45-36	43-34	45-36
	Ⓓ, D	3-2	1210-760	27-17	28-18	26-16	31-20	29-19	31-20
	Ⓓ, D	2-1	640-420	14-9	15-10	13-9	16-11	15-10	16-11
Wide Open See Note	Ⓓ, D	1-2	1220-1710	27-38	28-40	26-37	31-44	30-42	31-44
	Ⓓ, D	2-3	2340-2690	52-60	55-63	50-58	60-70	57-66	60-69
	Ⓓ, D	3-2	2250-1900	50-42	52-45	48-41	58-49	55-47	58-49
	Ⓓ, D	2-1	1360-900	30-20	31-21	29-19	35-23	33-22	35-23

Axle Ratio	TIRE SIZE	USE COLUMN NUMBER					
		3.55					
	P215/75R 15SL	1					
	P235/75R 15XL	2					
	P195/75R 15SL	3					
	7.50R X 16D	4					
	LT215/85R 16C	5					
	LT215/85R 16D	5					
	LT235/85R 16E	6					
	LT235/85R 16D	6					

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

4.9L 3.08 A/R, F150,
49S/Calif./Can., PKB-E

				COLUMN NUMBER					
Throttle	Range	Shift	OPS — R.P.M.	1	2	3	4	5	6
Closed Throttle See Note	Ⓓ, D	1-2	290-420	7-11	7-11	7-10			
	Ⓓ, D	2-3	650-810	16-21	17-22	16-20			
	Ⓓ	3-4	1470-1820	37-47	39-49	36-45			
	Ⓓ	4-3	1620-1270	41-33	43-34	40-32			
	Ⓓ, D	3-2	780-630	20-16	21-17	19-16			
	Ⓓ, D	2-1	370-230	9-6	10-6	9-6			
	1	3-1, 2-1	1100-730	28-19	29-20	27-18			
Part Throttle See Note	Ⓓ, D	1-2	590-860	15-22	16-23	14-21			
	Ⓓ, D	2-3	1180-1570	30-41	32-42	29-39			
	Ⓓ	3-4	1730-2300	44-59	46-62	43-57			
	Ⓓ	4-3	1750-1380	45-36	47-37	43-34			
	Ⓓ, D	3-2	1210-760	31-20	32-20	30-19			
	Ⓓ, D	2-1	640-420	16-11	17-11	16-10			
Wide Open See Note	Ⓓ, D	1-2	1130-1640	29-42	30-44	28-41			
	Ⓓ, D	2-3	2260-2620	58-68	61-71	56-65			
	Ⓓ, D	3-2	2180-1820	56-47	59-49	54-45			
	Ⓓ, D	2-1	1300-770	33-20	35-21	32-19			

TIRE SIZE		USE COLUMN NUMBER						
Axle Ratio		3.08						
	P215/75R 15	1						
	P235/75R 15	2						
	P195/75R 15	3						

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission
4.9L, 3.55, 3.73 A/R, E250,
49S/Calif./Can./Alt., PKB-F

				COLUMN NUMBER					
				1	2	3	4	5	6
Throttle	Range	Shift	OPS — R.P.M.						
Closed Throttle See Note	Ⓓ, D	1-2	290-420	7-10	6-10	6-10	6-9	6-10	
	Ⓓ, D	2-3	650-810	16-20	15-19	14-19	14-18	15-19	
	Ⓓ	3-4	1590-1890	39-47	37-44	36-43	34-41	38-45	
	Ⓓ	4-3	1700-1410	42-35	39-33	38-32	37-31	40-34	
	Ⓓ, D	3-2	780-630	19-16	18-15	17-14	17-14	18-15	
	Ⓓ, D	2-1	370-230	9-6	8-5	8-5	8-5	8-5	
	1	3-1, 2-1	1100-730	27-18	25-17	25-17	24-16	26-17	
Part Throttle See Note	Ⓓ, D	1-2	590-860	14-21	13-20	13-20	12-19	14-21	
	Ⓓ, D	2-3	1180-1570	29-39	27-37	27-36	25-34	28-38	
	Ⓓ	3-4	1830-2360	45-58	43-55	41-54	39-51	43-56	
	Ⓓ	4-3	1830-1500	45-37	43-35	41-34	39-33	43-36	
	Ⓓ, D	3-2	1210-760	29-19	28-18	27-17	26-17	28-18	
	Ⓓ, D	2-1	640-420	15-10	15-10	14-9	13-9	15-10	
Wide Open See Note	Ⓓ, D	1-2	1130-1640	27-40	26-39	25-38	24-36	27-39	
	Ⓓ, D	2-3	2260-2620	55-65	53-61	51-60	49-57	54-63	
	Ⓓ, D	3-2	2180-1820	53-45	51-43	49-42	47-40	52-43	
	Ⓓ, D	2-1	1300-770	32-19	30-18	29-18	28-17	31-18	

		TIRE SIZE		USE COLUMN NUMBER					
Axle Ratio		3.55	3.73						
	LT215/85R 16D	1	2						
	8.0 x 16.5D	3	4						
	8.75 x 16.5E	5	3						

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission
4.9L, 3.50, 3.55 A/R, E150/F150,
49S/Calif./Can./ Altitude, PKB-F

				COLUMN NUMBER					
Throttle	Range	Shift	OPS — R.P.M.	1	2	3	4	5	6
Closed Throttle See Note	Ⓓ, D	1-2	290-420	6-9	6-9	6-10	6-9		
	Ⓓ, D	2-3	650-810	14-18	15-19	15-19	14-18		
	Ⓓ	3-4	1590-1890	35-42	36-44	37-45	34-41		
	Ⓓ	4-3	1700-1410	37-31	39-33	40-34	36-31		
	Ⓓ, D	3-2	780-630	17-14	18-15	18-15	16-14		
	Ⓓ, D	2-1	370-230	8-5	8-5	8-5	8-5		
	1	3-1, 2-1	1100-730	24-16	25-17	26-17	23-16		
Part Throttle See Note	Ⓓ, D	1-2	590-860	13-19	14-20	14-20	12-19		
	Ⓓ, D	2-3	1180-1570	26-35	27-36	28-37	25-34		
	Ⓓ	3-4	1830-2360	40-52	42-55	43-56	40-51		
	Ⓓ	4-3	1830-1500	40-33	42-35	43-36	39-32		
	Ⓓ, D	3-2	1210-760	26-17	28-18	28-18	26-16		
	Ⓓ, D	2-1	640-420	14-9	14-9	15-10	13-9		
Wide Open See Note	Ⓓ, D	1-2	1130-1640	25-36	26-38	26-39	24-36		
	Ⓓ, D	2-3	2260-2620	50-58	52-61	53-62	48-57		
	Ⓓ, D	3-2	2180-1820	48-40	50-42	51-43	47-39		
	Ⓓ, D	2-1	1300-770	28-17	30-18	30-18	28-17		

		TIRE SIZE	USE COLUMN NUMBER					
Axle Ratio		3.50	3.55					
	P205/75R 15SL	1						
	P225/75R 15SL	2						
	P235/75R 15XL	3						
	P215/75R 15SL		1					
	P235/75R 15XL		3					
	P195/75R 15SL		4					

NOTE:
Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.
All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.
TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:
1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
2) TV linkage misadjusted (either long rod or short cable condition).
3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.
TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission
5.0L EFI 3.55, 3.73, A/R, F150/250,
49S/Calif./Can./Alt., PKB-J

				COLUMN NUMBER					
				1	2	3	4	5	6
Throttle	Range	Shift	OPS — R.P.M.						
Closed Throttle See Note	Ⓓ, D	1-2	370-530	8-12	8-12	8-11	9-13		
	Ⓓ, D	2-3	720-890	16-20	17-21	15-19	18-22		
	Ⓓ	3-4	1460-1850	32-41	34-43	31-40	36-46		
	Ⓓ	4-3	1580-1200	35-27	37-28	34-26	39-30		
	Ⓓ, D	3-2	870-700	19-16	20-16	18-15	21-17		
	Ⓓ, D	2-1	470-320	10-7	11-7	10-7	11-8		
	1	3-1, 2-1	1230-810	27-18	29-19	26-18	30-20		
Part Throttle See Note	Ⓓ, D	1-2	670-1050	15-24	15-25	14-23	16-26		
	Ⓓ, D	2-3	1350-1780	30-40	31-42	29-39	33-44		
	Ⓓ	3-4	1790-2420	40-54	42-57	38-52	44-60		
	Ⓓ	4-3	1760-1340	39-30	41-32	38-29	43-33		
	Ⓓ, D	3-2	1390-830	31-19	32-20	30-18	34-20		
	Ⓓ, D	2-1	750-500	16-11	17-12	16-11	18-12		
Wide Open See Note	Ⓓ, D	1-2	1400-1940	31-43	32-45	30-42	34-48		
	Ⓓ, D	2-3	2650-3020	59-68	62-71	57-65	65-75		
	Ⓓ, D	3-2	2530-2170	56-49	59-51	54-47	65-54		
	Ⓓ, D	2-1	1560-1060	34-24	23-25	33-23	38-26		

		TIRE SIZE	USE COLUMN NUMBER						
Axle Ratio		3.55	3.73						
	P215/75R 15SL	1							
	P235/75R 15XL	2							
	P195/75R 15SL	3							
	7.5R x 16D		4						
	LT215/85R 16D		2						
	LT235/85R 16E		4						

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

Powertrain — Automatic Transmission

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L EFI 3.54/3.55 A/R,
Bronco, F150, F250 4x4,
50S/Can./Alt., PKB-K

				COLUMN NUMBER					
				1	2	3	4	5	6
Throttle	Range	Shift	OPS — R.P.M.						
Closed Throttle See Note	Ⓓ, D	1-2	370-530	8-12	9-13	9-14			
	Ⓓ, D	2-3	720-890	16-21	17-22	18-23			
	Ⓓ	3-4	1460-1850	34-43	36-46	37-48			
	Ⓓ	4-3	1580-1200	37-28	39-30	41-31			
	Ⓓ, D	3-2	870-700	20-16	21-17	22-18			
	Ⓓ, D	2-1	470-320	11-7	11-8	12-8			
	1	3-1, 2-1	1230-810	28-19	30-20	32-21			
Part Throttle See Note	Ⓓ, D	1-2	670-1050	15-25	16-26	17-27			
	Ⓓ, D	2-3	1350-1780	31-42	33-44	35-46			
	Ⓓ	3-4	1790-2420	42-57	44-60	46-63			
	Ⓓ	4-3	1760-1340	41-31	43-33	45-34			
	Ⓓ, D	3-2	1390-830	32-20	34-21	36-22			
	Ⓓ, D	2-1	750-500	17-11	18-12	19-13			
Wide Open See Note	Ⓓ, D	1-2	1400-1940	32-46	34-48	36-50			
	Ⓓ, D	2-3	2650-3020	62-71	66-75	68-78			
	Ⓓ, D	3-2	2530-2170	59-51	63-54	65-56			
	Ⓓ, D	2-1	1560-1060	36-25	38-26	40-28			

Axle Ratio	TIRE SIZE	USE COLUMN NUMBER					
		3.55	3.54				
	P235/75R 15XL	1					
	10 x 15C	2					
	7.50 x 16D		3				
	LT215/85R 16D		2				
	LT235/85R 16D		3				
	LT235/85R 16E		3				

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L EFI 4.10 A/R, F250,

49S/Calif./Can./Altitude, PKB-L

				COLUMN NUMBER					
				1	2	3	4	5	6
Throttle	Range	Shift	OPS — R.P.M.						
Closed Throttle See Note	Ⓐ, D	1-2	370-530	8-12	7-11	8-12			
	Ⓐ, D	2-3	740-900	16-20	15-19	16-20			
	Ⓐ	3-4	1600-1960	35-44	34-42	35-44			
	Ⓐ	4-3	1720-1350	38-30	36-29	38-30			
	Ⓐ, D	3-2	870-720	19-16	18-15	19-16			
	Ⓐ, D	2-1	470-320	10-7	10-7	10-7			
	1	3-1, 2-1	1230-810	27-18	26-17	27-18			
Part Throttle See Note	Ⓐ, D	1-2	770-1220	17-27	16-26	17-27			
	Ⓐ, D	2-3	1570-1940	35-43	33-41	35-43			
	Ⓐ	3-4	1890-2510	42-56	40-54	42-56			
	Ⓐ	4-3	1810-1480	42-33	40-32	42-33			
	Ⓐ, D	3-2	1670-1270	37-29	35-27	37-28			
	Ⓐ, D	2-1	790-580	17-13	16-12	17-13			
Wide Open See Note	Ⓐ, D	1-2	1610-2030	36-46	34-43	36-45			
	Ⓐ, D	2-3	2760-3110	62-70	59-67	61-70			
	Ⓐ, D	3-2	2690-2360	60-53	57-50	60-53			
	Ⓐ, D	2-1	1630-1220	36-27	34-26	36-27			

		TIRE SIZE	USE COLUMN NUMBER						
Axle Ratio		4.10							
	7.5R x 16D	1							
	LT215/85R 16D	2							
	LT235/85R 16E	3							

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

SHIFT SPEEDS — ACTUAL M.P.H.

Automatic Overdrive Transmission

5.0L EFI 4.10, 4.11 A/R,
Bronco/F150/250 4x4,
49S/Calif./Can./Altitude,
PKB-M

				COLUMN NUMBER					
				1	2	3	4	5	6
Throttle	Range	Shift	OPS — R.P.M.						
Closed Throttle See Note	Ⓓ, D	1-2	370-530	8-12	8-11	7-11			
	Ⓓ, D	2-3	740-900	16-20	16-19	15-18			
	Ⓓ	3-4	1600-1960	35-44	34-42	33-40			
	Ⓓ	4-3	1720-1350	38-30	37-29	35-28			
	Ⓓ, D	3-2	870-720	19-16	18-15	17-15			
	Ⓓ, D	2-1	470-320	10-7	10-7	9-6			
	1	3-1, 2-1	1230-810	27-18	26-17	25-16			
Part Throttle See Note	Ⓓ, D	1-2	770-1220	17-27	16-26	15-25			
	Ⓓ, D	2-3	1570-1940	35-43	33-42	32-40			
	Ⓓ	3-4	1890-2510	42-56	40-54	39-51			
	Ⓓ	4-3	1890-1480	42-33	40-32	38-30			
	Ⓓ, D	3-2	1670-1270	37-28	36-27	34-26			
	Ⓓ, D	2-1	790-580	17-13	17-12	16-12			
Wide Open See Note	Ⓓ, D	1-2	1610-2030	36-46	34-44	33-42			
	Ⓓ, D	2-3	2760-3110	62-70	59-67	56-64			
	Ⓓ, D	3-2	2690-2360	60-53	58-51	55-48			
	Ⓓ, D	2-1	1630-1220	37-27	35-26	33-25			

		TIRE SIZE	USE COLUMN NUMBER					
Axle Ratio		4.10	4.11					
	7.50 x 16D	1						
	LT215/85R 16D	2						
	LT235/85R 16D	1						
	LT235/85R 16E	1						
	P235/75R XL		3					
	10 x 15C		2					

NOTE:

Part throttle shift speeds cannot be checked unless a TV pressure gage is installed. Use 0-100 psi gage.

All part throttle shift speeds except 3-4 and 4-3 are for a TV pressure of 60 psi. The 4-3 and 3-4 part throttle shift speeds are quoted at a different throttle setting — 40 psi — to keep them within a reasonable speed range.

TV pressure should be 0 psi (or less than 5 psi) at closed throttle. If it is not, check the following in this order:

- 1) TV linkage not returning at idle due to interference of engine hoses, binding condition, or return spring at carburetor not returning TV lever.
- 2) TV linkage misadjusted (either long rod or short cable condition).
- 3) Throttle plunger in main control binding due to bolt torque out of spec. or contamination.

TV pressure at wide open throttle should be within specification (79-91 psi for 5.0L, 5.0L HO and 5.8L, 74-86 psi for 4.9L and 3.8L).

SERVICE SPECIFICATIONS

Stall Speeds — All Vehicles

Vehicle	Engine/Litre Displacement	Transmission Type	Converter		Stall Speed (RPM)	
			Size (Inches)	ID	Min.	Max.
Ranger 4x2	2.3L	C3	10-1/4"	HA	2381	2760
Ranger 4x4	2.3L	C5	10-1/4"	BU	2675	3068
	3.8L	C5	12"	GB	1737	2022
F-150/250, E-150/250	4.9L, 5.0L	C6	12"	99	1616	1871
F-350/E-350	4.9L, 5.0L	C6	12"	99	1616	1871
F-150 (49S/Canada)	4.9L, 5.0L	C6	12"	99	1616	1871
F-150 (50S)/F-250 (49S), E-150/250	4.9L, 5.0L	C6	12"	99	1616	1871
F-150/250	5.8L	C6	12"	100	1569	1729
F-250 (Calif.)/F-250/350, Bronco/E-150	5.8L	C6	12"	100	1569	1729
E-250/350	5.8L	C6	12"	100	1569	1729
E-250/350	7.5L	C6	12"	91	1610	1891
F-150, E-150/250	4.9L	AOD	12"	21A @	1933	2230
F-150/250, E-150/250	5.0L	AOD	12"	24A @	1975	2285

@ For service replacement converter use 22A

Control Pressures — C-5

Transmission Model	Range	Idle		
		15" & Above	10"	WOT Stall Thru Detent
PEA-CU	D	57-73	93-103	150-164
	2,1	95-108	93-103	150-164
	R	61-121	155-172	250-274
	P,N	57-73	93-103	150-164
PEA-CW	D	64-84	99-109	157-171
	2,1	102-115	99-109	157-171
	R	73-133	166-184	261-285
	P,N	64-80	99-109	157-171

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS — CONT'D

Control Pressures — A4LD

Transmission Type	Transmission Model	Range		Idle	
			15" & Above	10"	WOT Stall Thru Detent
A4LD	85GT-ABA/ACA/ AEA/AGA/ALA/ AMA/BAA/BCA	OD*,D,2,1 R P,N	50-70 75-109 50-70	92-113 158-178	167-195 282-316
A4LD	85GT-ALA/AMA/BAA (Altitude)	OD,D,2,1 R P,N	50-60 66-78 50-60	70-93 122-145	144-177 247-282

*Absolute barometric pressure (ABP) 29.0-30.0

@Absolute barometric pressure (ABP) 24.0-25.0

Control Pressures — C-6

Transmission Type	Transmission Model	Idle 15" & Above		10" Vacuum		WOT Stall	
		Altitude	Non Altitude	Altitude	Non Altitude	Altitude	Non Altitude
C6	PGD-EV-EY-FD DW-DL D, 2, 1 R P, N	42-61# 53-81@ 66-95# 81-126@ 42-61# 53-81@	52-76 81-119 52-76	68-95# 86-113@ 106-148# 135-177@	88-111 137-173	134-159# 150-185@ 209-249# 235-285@	150-185 245-275
C6	PGD-AW-EG-FE-FF PJE-B-C D, 2, 1 R P, N	42-61# 53-81@ 66-95# 81-126@ 42-61# 53-81@	42-63 66-99 42-63	68-95# 86-113@ 106-148# 135-177@	75-110 117-157	134-159# 150-185@ 209-249# 235-285@	155-180 245-275
C6	PGD-EK-FB-FC PJE-A D, 2, 1 R P, N	42-63 66-99 42-63		75-110 117-157		155-180 245-275	
C6	PJD-BA-BB-BC D, 2, 1 R P,N	67-91 94-142 67-91		99-119 155-186		155-180 245-275	

@At sea level Bar = 29.5

#At 5000 ft Bar = 24.5

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS — CONT'D

Control Pressures — AOD

Transmission Model	Range	Idle		WOT Stall	
		Throttle Pressure	Line Pressure	Throttle Pressure	Line Pressure
All (Except 4.9L Appl.)	P,N,⊙,D,1 R	0 0	55-65 75-90	79-91 79-91	180-215 250-290
4.9L	P,N,⊙,D,1 R	0 0	55-65 75-90	74-86 74-86	176-204 241-279

Torque-Converter End-Play — All Vehicles

Transmission Model	Converter End-Play			
	New or Rebuilt Converter		Used Converter	
	MM	Inch	MM	Inch
A4LD,C5	0.584 Max.	0.023 Max.	1.27 Max.	0.050 Max.
C6	0.533 Max.	0.021 Max.	1.01 Max.	0.040 Max.
AOD (Automatic Overdrive)	0.584 Max.	0.023 Max.	1.27 Max.	0.050 Max.

Transmission End Play — All Vehicles

Transmission Model	MM	Inch
A4LD,C5	.025-0.635(1)	0.001-0.025(1)
C6	0.203-1.067	0.008-0.042
AOD	0.203-1.117	0.008-0.044

(1) Less gasket.

Turbine and Stator

End Play — C-3 (Ranger Only)

New or rebuilt.....58mm/0.023 inch Max.
Used 1.27mm/0.050 inch

SERVICE SPECIFICATIONS — CONT'D

Selective Thrust Washers (End Play Control) — A4LD

End Play .001-.025 Inch (Less Gasket)	No. 1 Thrust Washer Front Pump Support (Selective)	Part Numbers	Thickness		ID Number
			Inches	mm	
		74DT-7D014-EA	9.109-0.111	2.725-2.775	5
		76DT-7D014-DA	0.093-0.095	2.325-2.375	4
		76DT-7D014-CA	0.077-0.079	1.925-1.975	3
		76DT-7D014-BA	0.061-0.063	1.525-1.575	2
		76DT-7D014-AA	0.049-0.051	1.225-1.275	1

Selective Thrust Washers C-5

(Selective Washers Must be Installed in Pairs)

Thrust Washer No. 1		Thrust Washer No. 2
Color of Washer	Thickness	Washer Number
Red	0.058-0.053	2
Green	0.074-0.070	3
Neutral	0.092-0.087	2 or 3 Plus Spacer(1)

(1) This is a selective spacer used with washer 2 or 3. When used, install next to stator support.

Selective Thrust Washers (Front Pump Support) — C-6

Identification Color	Thickness	
	MM	Inch
Blue	1.42-1.52	0.056-0.060
Natural (White)	1.85-1.95	0.073-0.077
Red	2.23-2.33	0.088-0.092

Selective Thrust Washer* — AOD

Depth	Thickness	Color Code
1.483-1.500	0.050-0.054	Green
1.501-1.517	0.068-0.072	Yellow
1.518-1.534	0.085-0.089	Natural

Depth	Thickness	Color Code
1.535-1.551	.102-.106	Red
1.552-1.568	.119-.123	Blue

*The thrust washer is located on the stator support which is attached to the back of the pump housing.

Powertrain — Automatic Transmission

SERVICE SPECIFICATIONS — CONT'D

Clutch Plate Usage, Clearance and Snap Rings — C-5

Forward Clutch			Reverse and High Clutch		
External Spline (Steel)	Internal Spline (Comp.)	Free Pack Clear (Inches)	External Spline (Steel)	Internal Spline (Comp.)	Free Pack Clear (Inches)
4	5	0.025-0.050	4	4	0.025-0.050
Selective Snap Ring Thickness (Fwd. or Rev. Clutch)			0.050-0.054, 0.064-0.068, 0.078-0.082, 0.092-0.096, 0.104-0.108		

(1) Ranger

(2) F-150

Clutch Plate Usage and Clearance — C-6

Transmission Model	Steel	Friction	Clearance	
			MM	Inch
Forward Clutch				
PGD, PJD	4 (1)	4	0.533-1.168	0.021-0.046
High Clutch				
PGD, PJD	3	3	0.558-0.914	0.022-0.036
Reverse Clutch				
PJD	5 (2)	5	—	—
PGD	4 (2)	4	—	—

(1) Plus a waved plate (7E457) next to inner pressure plate.

(2) Plus a waved plate next to the piston.

Clutch Snap Rings — C-6

Part Number	Thickness		Forward	High
	MM	Inch		
377434	1.52-1.42	0.060-0.056	X	X
377126	1.75-1.62	0.069-0.064		X
377127	1.98-1.87	0.078-0.074	X	X
377128	2.20-2.10	0.087-0.083		X
377444	2.43-2.33	0.096-0.092	X	X
386841	2.89-2.79	0.114-0.110	X	
386842	3.35-3.25	0.132-0.128	X	

Clutch Plate Usage, Clearance and Snap Ring Thickness — AOD

SERVICE SPECIFICATIONS — CONT'D

Forward Clutch

Transmission Model	Steel	Friction	Clearance	Selective Snap Rings-Thickness
Models with 4.9L (300 CID) I-6	4*	4	0.040-0.071	0.074-0.078
Models with 5.0L	5*	5	0.050-0.089	0.102-0.108
EFI				0.088-0.092
				0.060-0.064

* Plus a waved plate (Installed next to piston)

Reverse Clutch

Transmission Model	Steel	Friction	Clearance	Selective Snap Rings-Thickness
Models with 5.0L EFI	3	4	0.040-0.075	0.074-0.078
4.9L (300 CID) I-6	2	3	0.030-0.056	0.102-0.106
				0.088-0.092
				0.060-0.064

Direct Clutch

Transmission Model	Steel	Friction	Clearance	Selective Snap Rings-Thickness
All (4.9L, 5.0L)	5	5	0.050-0.067	0.050-0.054
				0.064-0.068
				0.078-0.082
				0.092-0.096

Intermediate Clutch

Transmission Model	Steel	Friction	Gage Dim.	Selective Snap Rings-Thickness
All (4.9L, 5.0L)	3#	3	1.634-1.646	0.067-0.071
				0.077-0.081
				0.087-0.091
				0.097-0.101

#Includes 1 selective plate.

TORQUE SPECIFICATIONS

C-5

Item	N·m	In-Lb
End Plates to Body	2.82-4.51	25-40
Separator Plate to Timing Valve Body	2.82-4.51	25-40
Lower Body and Detent to Upper Body	4.51-6.77	40-60
Oil Pan Screen to Timing Valve Body	2.82-4.51	25-40
Governor to Oil Collector	9-14	80-120
Pump Assembly to Case	3.16-3.95	28-38
Main Control to Case	9.03-13.55	80-120
Neutral Switch to Case	6.21-8.47	55-75
Upper Body to Lower Body (Long)	9.03-12.55	80-120
Upper Body to Lower Body (Short)	4.51-6.77	40-60
3-2 Timing Valve Body to Upper Body	4.51-6.77	40-60
Detent Spring and Lower Body to Upper Body	4.51-6.77	40-60
3-2 Timing Valve Body to Lower Body 5/16	4.51-6.77	40-60
3-2 Timing Valve Body to Lower Body 3/8	8.5	75

TORQUE SPECIFICATIONS — CONT'D

C-5

Item	N·m	Ft·Lb
Oil Cooler Line Connector to Transmission Case	24-31	18-23
Overrunning Clutch Race to Case	18-27	13-20
Oil Pan to Case	17-21	12-16
Stator Support to Pump	17-27	12-20
Converter Housing Cover to Converter Housing	17-21	12-16
Converter Housing to Case	38-55	28-40
Pump to Case	38-55	28-40
Engine Rear Cover Plate to Transmission	17-21	12-16
Rear Servo Cover to Case	17-27	12-20
Intermediate Servo Cover to Case	22-29	16-22
Oil Distributor Sleeve to Case	17-27	12-20
Extension Housing to Case	38-54	28-40
Engine to Transmission (3.8L)	38-51	28-38
Transmission to Engine (4.2L & 3.3L)	55-67	40-50
Outer Throttle Lever to Shaft	17-21	12-16
Inner Manual Lever to Shaft	41-54	30-40
Pump Pressure Plug to Case	9-16	6-12
Tube Nut — Cooler Line to Transmission Case Fitting	17-24	12-18
Intermediate Band and Reverse Band Adjusting Screw Locknut	47-61	35-45
Drain Plug to Converter Cover	16-23	12-17
Flywheel to Torque Converter	27-46	20-43

C-6

Item	(In·Lb)	N·m
End Plates to Body	20-45	2.5-5
End Plates to Body	20-40	2.5-4.5
Inner Downshift Lever Stop	20-45	2.5-5
Reinforcement Plate to Body	20-45	2.5-5
Screen and Lower to Upper Valve Body	40-55	5-6.2
Shift Valve Plate to Upper Body	20-45	2.5-5
Upper to Lower Body	40-55	5-6.2

TORQUE SPECIFICATIONS — CONT'D

C-6

Item	(In-lb)	N-m
Reinforcing Right Side Plate to Lower Body	20-45	2.5-5
Converter Housing Cover to Converter Housing (7.5L)	30-60	3.5-6.5
Control Assy. to Case	95-125	11-14
Governor Body to Collector Body	90-120	10.5-13.5
Detent Spring to Case	80-120	9.5-13.5
Rear Engine Support to Frame	40-60	5-6.5
Neutral Switch to Case	55-75	6.5-8

Item	(Ft-lb)	N-m
Converter to Flywheel	20-34	28-45
Front Pump to Transmission Case	16-30	22-40
Overrunning Clutch Race to Case	18-25	25-33
Oil Pan to Case	8-12	11-16
Stator Support to Pump	12-16	17-21
Converter Cover to Converter Housing	12-16	17-21
Guide Plate to Case	12-16	17-21
Intermediate Servo Cover to Case	14-20	19-27
Diaphragm Assy. to Case	12-16	17-21
Distributor Sleeve to Case	12-16	17-21
Extension Assy. to Transmission Case	25-35	34-47
Plug — Case Front Pump or Line Pressure	6-12	8.5-16
Pressure Gauge Tap	6-12	8.5-16
Band Adj. Screw Locknut to Case	35-45	48-61
Converter Drain Plug	8-28	11-37
Manual Valve Inner Lever to Shaft	30-40	41-54
Downshift Lever to Shaft	12-16	17-21
Filler Tube to Engine (Econoline-5.0L/5.8L/7.5L)	40-50	54-67
Filler Tube to Engine (Econoline 4.9L)	33-42	44-56
Filler Tube to Engine (Econoline 6.9L)	24-35	32-47
Transmission to Engine (Diesel Only)	50-65	67-87
Transmission to Engine (All Gasoline Engines)	40-50	55-67
Rear Engine Support to Transmission	60-80	80-107
Plug Case — Throttle Pressure	6-12	8.5-16
5/16" Fitting — Cooler Line Connector to Case — Front and Rear (Case Fitting)	18-23	25-32
5/16" Tube Nut — Cooler Line to Transmission Case Fitting	12-18	17-24

TORQUE SPECIFICATIONS — CONT'D

1985 A4LD

Description	N·m	Ft-Lbs
Transmission to Engine	38.0-51.5	28-38
Converter Housing Lower Cover to Converter Housing	16.3-21.7	12-16
Converter Housing and Pump to Case	36.6-52.9	27-39
Oil Pump to Converter Housing	9.5-13.6	7-10
Center Support (O/D) to Case	8.0-11.0	*71-97
Extension Housing to Case	36.6-52.9	27-39
Oil Pan to Case	6.8-13.6	5-10
Main Control to Case	8.0-11.0	*71-97
Separator Plate to Valve Body	9.5-12.1	*84-107
Detent Spring to Valve Body	9.0-12.1	*80-107
Neutral Start Switch to Case	9.5-13.6	*84-120
Reverse Servo to Case	9.0-13.0	*80-115
Vacuum Diaphragm Retainer Clip to Case	9.0-12.0	*80-106
Governor Assembly to Oil Collector Body	9.5-13.6	*84-120
Outer Downshift Lever to Inner Lever Shaft Nut	9.5-15.0	7-11
Manual Lever Nut	40.7-54.2	30-40
Overdrive Band Adjusting Screw Locknut to Case	47.5-61.0	35-45
Intermediate Band Adjusting Screw Locknut to Case	47.5-61.0	35-45
Converter to Flywheel Attaching Nut	27.1-46.1	20-34
Cooler Line to Case Connector	24.4-31.2	18-23
Push Connect Cooler Line Fitting to Case	24.4-31.2	18-23
Cooler Line to Connector — Tube Nut (5/16 Inch) (Torque Tube Nuts to Spec. While Holding the Transmission Fitting.)	16.3-24.4	12-18
Pressure Plug to Case	9.5-14.9	7-11

*In-Lbs

TORQUE SPECIFICATIONS — CONT'D**AOD**

Application	Torque
Stator Support to Pump Body	22-34 N·m (16-25 ft·lb)
Front Pump to Case	22-27 N·m (16-20 ft·lb)
Reinforcing Plate to Valve Body	9-11 N·m (80-100 in·lb)
Separator Plate to Valve Body	9-11 N·m (80-100 in·lb)
Valve Body to Case	9-11 N·m (80-100 in·lb)
Filter to Valve Body	9-11 N·m (80-100 in·lb)
Oil Pan to Case	16-22 N·m (12-16 ft·lb)
Extension to Case	22-27 N·m (16-20 ft·lb)
Governor Body to Counterweight	6-7 N·m (50-60 in·lb)
Governor Body Cover Plate to Governor Body	2.3-3.4 N·m (20-30 in·lb)
Inner Manual Lever to Shaft	41-54 N·m (30-40 ft·lb)
Outer Throttle Lever to Shaft	16-22 N·m (12-16 ft·lb)
Cooler Line to Case	24-31 N·m (18-23 ft·lb)
Converter Plug to Converter	11-38 N·m (8-28 ft·lb)
Neutral Start Switch to Case	10-14 N·m (7-10 ft·lb)
Pressure Plug to Case	8-16 N·m (6-12 ft·lb)
Transmission to Engine	55-68 N·m (40-50 ft·lb)

Powertrain — Gasoline Engines — Identification

ENGINE IDENTIFICATION LABEL — RANGER 2.0L/2.3L

The engine identification label is located on the timing belt cover.

Code				
-Year	50S	49S	Canada	Calif.
0	0	A	L	S
1	1	B	M	T
2	2	C	N	U
3	3	D	P	W
4	4	E	R	X
5	5	F	L	S
6	6	G	M	T
7	7	H	N	U
8	8	J	P	W
9	9	K	R	X

- A — Air Conditioning
- B — Non-Air Conditioning
- C — Industrial & Marine
- D — Export
- E — Over 8500 lbs/Non Therm.
- F — Thermactor Without A/C
- G — A/C or Non-A/C Engines
- H — Power Steering
- J — Thermactor With A/C
- K — Thermactor A/C or Non-A/C
- L — Over 8500 Lbs/Therm.

Base
(Displacement)
(Vehicle Application)
(Inertia Weight)
(Axle Ratio)
(Transmission)

L CL 606 AA

Design Level

A B C D E F G H J K L M

1 2 3

1 2 3 4 5 6 7 8 9 0

Engine
Build
Date

3°

Initial Timing

CALIBRATION
2-05C-R11

Calibration
Number

Denotes Plant Source to Produce
Engines

L	—	Lima Engine Plant
C1	—	Cleveland Engine Plant 1
C2	—	Cleveland Engine Plant 2
W1	—	Windsor Engine Plant 1
W2	—	Windsor Engine Plant 2

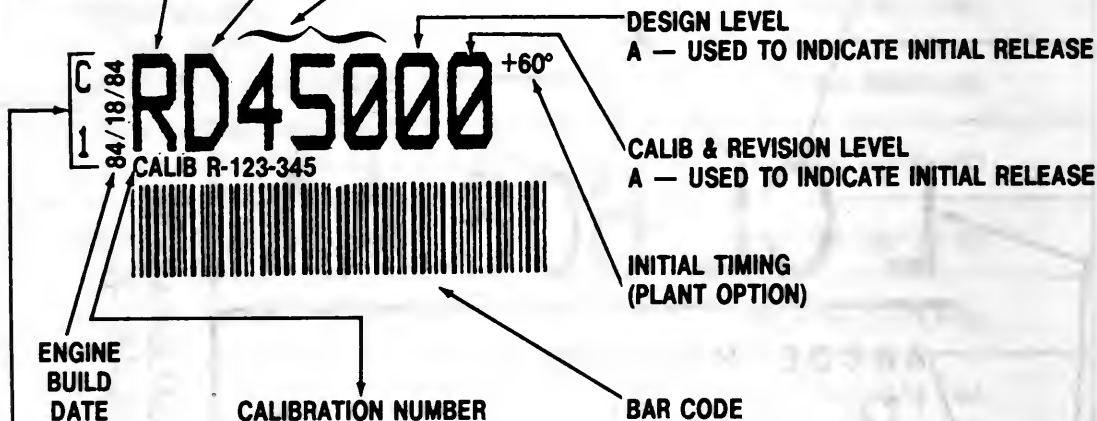
Powertrain — Gasoline Engines — Identification

ENGINE IDENTIFICATION LABEL — E-F-150-350, BRONCO

YEAR	50S	49S	CANADA	CALIF
0	0	A	L	S
1	1	B	M	T
2	2	C	N	U
3	3	D	P	W
4	4	E	R	X
5	5	F	L	S
6	6	G	M	T
7	7	H	N	U
8	8	J	P	W
9	9	K	R	X

A	— AIR/CONDITIONING
B	— NON AIR/CONDITIONING
C	— INDUSTRIAL & MARINE
D	— EXPORT
E	— OVER 6000 LBS./NON THERM
F	— THERMACTOR WITHOUT A/C
G	— A/C OR NON A/C ENGINES
H	— POWER STEERING
J	— THERMACTOR WITH A/C
K	— THERMACTOR A/C OR NON A/C
L	— OVER 6000 LBS./THERM

BASE
DISPLACEMENT
VEHICLE APPLICATION
INERTIA WEIGHT
AXLE RATIO
TRANSMISSION

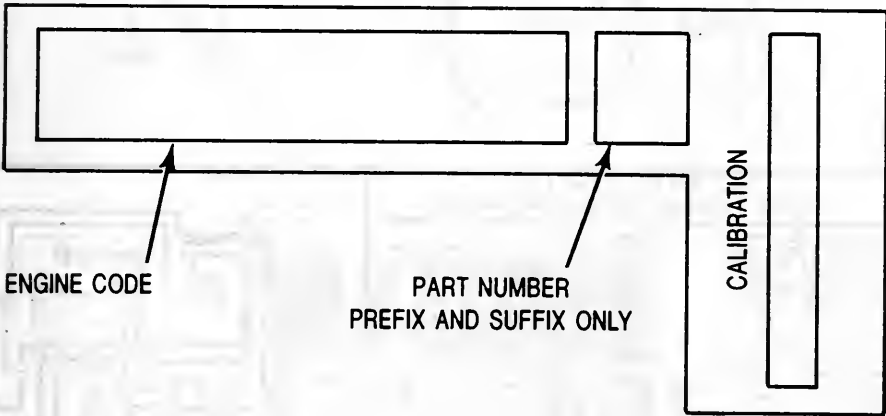


DENOTES PLANT SOURCED TO PRODUCE ENGINES

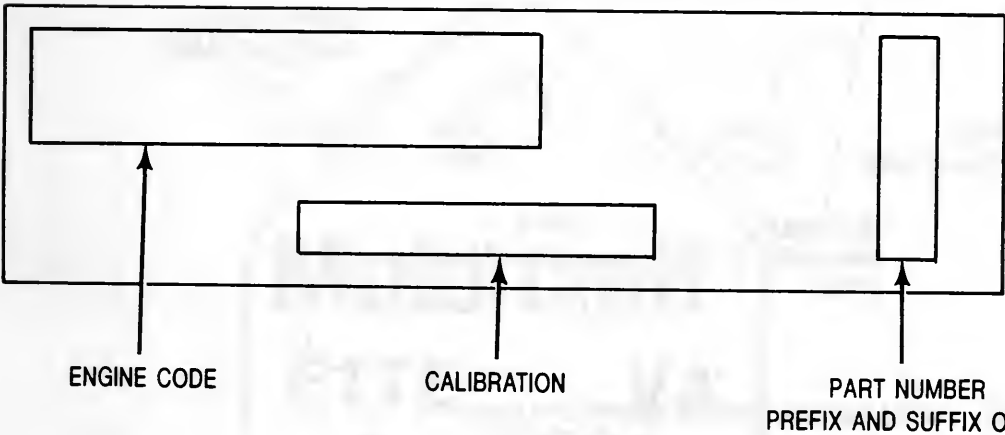
- D — DEARBORN ENGINE PLANT
- C1 — CLEVELAND ENGINE PLT. 1
- C2 — CLEVELAND ENGINE PLT. 2
- W1 — WINDSOR ENGINE PLT. 1
- W2 — WINDSOR ENGINE PLT. 2

ALTERNATE ENGINE
IDENTIFICATION LABELS

TYPE I



TYPE II



VEHICLE EMISSION CONTROL INFORMATION (VECI) DECAL — ALL VEHICLES

TRANSMISSION GEAR POSITION DURING ADJUSTMENT

IGNITION TIMING SPECIFICATION

MAXIMUM TIMING RPM SPECIFICATION

CURB IDLE RPM SPECIFICATION

ENGINE VACUUM HOSE ROUTING

FORD MOTOR COMPANY

VEHICLE EMISSION CONTROL INFORMATION

SET PARKING BRAKE AND BLOCK WHEELS. DISCONNECT AUTOMATIC PARKING BRAKE RELEASE (IF SO EQUIPPED). MAKE ALL ADJUSTMENTS WITH ENGINE AT NORMAL OPERATING TEMPERATURE. ACCESSORIES AND HEADLIGHTS OFF. PUT AIR CLEANER IN POSITION WHEN CHECKING ALL ENGINE SPEEDS.

MAKE ALL ADJUSTMENTS WITH TRANSMISSION IN NEUTRAL.

IGNITION TIMING-DISCONNECT AND PLUG DISTRIBUTOR VACUUM HOSE. ADJUST TIMING TO 10° BTDC. 800 RPM MAX. RECONNECT HOSE.

FAST IDLE-DISCONNECT AND PLUG EGR VALVE VACUUM HOSE. PUT FAST IDLE SCREW ON RICKDOWN STEP OF FAST IDLE CAM. RUN ENGINE UNTIL RADIATOR COOLING FAN COMES ON. ADJUST TO 2400 RPM (2200 RPM FOR VEHICLE WITH LESS THAN 100 MILES). RECONNECT EGR VACUUM HOSE.

CURB IDLE-1. VACUUM OPERATED THROTTLE MODULATOR (VOTM) OFF. PUT FAST IDLE SCREW ON SECOND STEP OF FAST IDLE CAM AND RUN ENGINE UNTIL RADIATOR COOLING FAN COMES ON. ACCELERATE ENGINE. TEMPORARILY DISCONNECT AND PLUG VOTM VACUUM HOSE. ADJUST TO 800 RPM BY TURNING THROTTLE STOP. ADJUSTING SCREW 1700 RPM FOR VEHICLE WITH LESS THAN 100 MILES. ADJUST DASHPOT CLEARANCE TO 2. VOTM ON-PLACE HEATER SELECTOR ON HEAT. TEMPERATURE ON COOL AND BLOWER ON. HIGH CONNECT A VACUUM HOSE FROM MANIFOLD VACUUM TO THE VOTM. WITH RADIATOR COOLING FAN RUNNING. ADJUST TO 1000 RPM BY TURNING SCREW ON TOP OF VOTM 1100 RPM FOR VEHICLE WITH LESS THAN 100 MILES. RESTORE VOTM VACUUM CONNECTIONS.

SEE SHOP MANUAL FOR CHOKE AND IDLE MIXTURE ADJUSTMENT INFORMATION.

THIS VEHICLE CONFORMS TO U.S.E.P.A. REGULATIONS APPLICABLE TO 1983 MODEL YEAR NEW MOTOR VEHICLES COMPLIANCE DEMONSTRATED AND DESIGNED FOR PRINCIPAL USE BELOW 4000 FEET FOR NEW VEHICLE COMPLIANCE ABOVE 4000 FEET. SEE SERVICE PUBLICATIONS.

VACUUM HOSE ROUTING

--- A/C ONLY

--- NON A/C ONLY

E3AE-C4B5-**CATALYST**

SPARK PLUG: AMSF-32 16 LITER /CM OF 16 V2GWS EGR/ATW/C

GAP-.042-.046

FRONT OF VEHICLE

FAST IDLE RPM SPECIFICATION

CATALYST OR NON-CATALYST

ADJUSTMENT PROCEDURE NOTES

SPARK PLUG GAP SPECIFICATION

ENGINE FAMILY

SPARK PLUG TYPE

ENGINE DISPLACEMENT

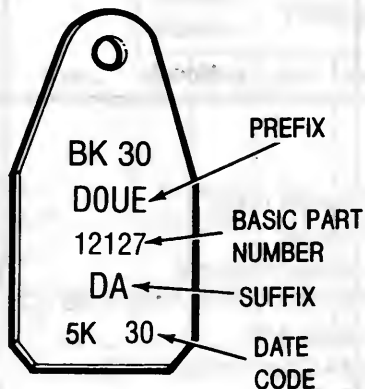
TYPICAL VEHICLE EMISSION CONTROL INFORMATION DECAL

DISTRIBUTOR IDENTIFICATION TAG — ALL EXCEPT 3.8L ENGINE

DATE CODE
READ:

- YEAR (0-9)
- MONTH (A-M, I NOT USED)
- DAY (1-31)

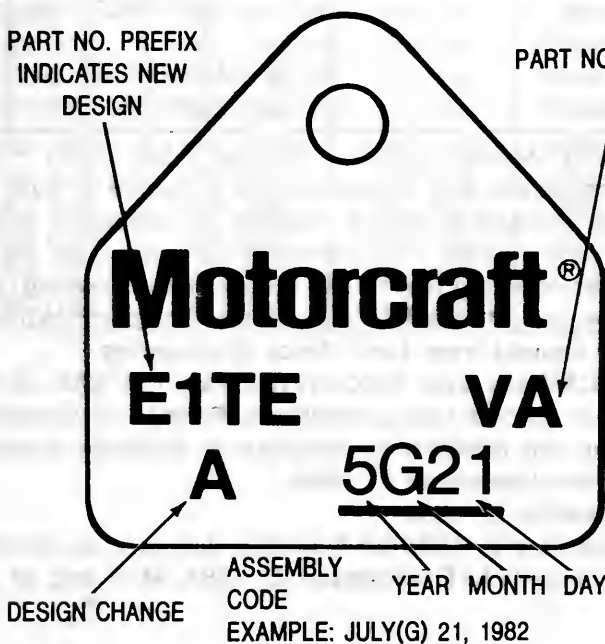
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1985	OCT	30



TYPICAL CARBURETOR IDENTIFICATION TAG — ALL VEHICLES

PART NO. PREFIX
INDICATES NEW
DESIGN

PART NO. SUFFIX



AVAILABILITY/POWER RATINGS — ALL ENGINES

Engine	Sales Region	Models	Trans.	HORSE-POWER		TORQUE		Nominal Compression Ratio
				HP	RPM	LB-FT	RPM	
Gasoline Engines	a/							
2.0	49S	Ranger (4X2)	M/T	74	4000	108	2600	9.0
2.3	50S	Ranger	M/T & A/T	90	4000	130	1800	9.5
2.8L	50S	Ranger/Bronco II	M/T & A/T	115	4600	150	2600	8.7
4.9L	49S	F150 2.47/3.08 U160/F160 3.08	M/T -----	120	3000	250	2000	8.5
	49S	E150 3.00	M/T					8.5
	50S	All Others (except CAN)	M/T & A/T	125	3200	245	1800	8.5
	CAN b/	E/F-Series	M/T & A/T	116	3200	230	1600	7.9
	49S c/	E/F-Series HD	M/T & A/T	125	3200	235	1200	7.9
	49S d/	E/F-Series HD	M/T & A/T	125	3400	240	1200	7.9
5.0L-2V	49S e/	E150/E250	A/T	150	3600	250	2600	8.4
	49S e/	F150/250	A/T	145	3400	250	2200	8.4
	CAL e/	F150/250	A/T -----	145	3400	255	1600	8.4
	CAL e/	E150/250	A/T					8.4
5.0L-EFI	50S	F150/F250/U160/F160/F260	M/T & A/T	190	3800	285	2400	9.0
5.8L-2V	49S e/	F250/F160/F260	M/T -----	150	3200	280	1800	8.3
	CAL e/	F150/F250/U160/F160/F260	A/T					8.3
	CAL e/	E150/E250	A/T					8.3
	49S f/	F-Series HD	M/T & A/T	165	3200	295	2200	8.3
	49S f/	E-Series HD	A/T	160	3200	280	2000	8.3
5.8L-4V	49S	F150/F250/U160/F160/F260	A/T -----	210	4000	305	2800	8.3
	49S	E150/250	A/T					8.3
	49S d/	E/F-Series HD	A/T	tbd	tbd	tbd	tbd	8.3
7.5L	49S d/	F-Series HD	M/T -----	225	4000	365	2800	8.0
		E/F-Series HD	A/T					8.0
	CAL c/	F-Series HD	M/T -----	220	4000	360	2600	8.0
		E/F-Series HD	A/T					8.0
	49S d/	E/F-Series HD	M/T & A/T	tbd	tbd	tbd	tbd	8.0
	CAL d/	E/F-Series HD	M/T & A/T	tbd	tbd	tbd	tbd	8.0

Note: F150/F250 = (4X2) Models; U160 = Bronco; F160/F260 = (4X4) Models

a/ Representative horsepower and torque ratings adjusted to SAE J1349 net for gasoline and diesel engines as noted. Ratings for individual engine model combinations may vary slightly. This potential variation must be acknowledged whenever engine performance levels are utilized for marketing/advertising purposes. More specific information is available (for certification and compliance related issues) from Light Truck Engineering.

b/ Vehicles listed as CAN are over 6000 GVWR, rated at SAE J245, and are equipped with unique leaded fuel calibrations. Ratings of Canadian vehicles not shown as unique are identical to 49-State or 50-State applications.

c/ Discontinued, effective December 3, 1984.

d/ New, effective December 3, 1984.

e/ Carryover until November 5, 1985 on F-Series; full year on Econoline.

f/ Applications discontinued: A/T December 3, 1984, M/T end of 1984 CY.

Powertrain — Gasoline Engines

AVAILABILITY/POWER RATINGS — ALL ENGINES — Cont'd

Engine	Sales Region	Models	Trans.	HORSE-POWER		TORQUE		Nominal Compression Ratio
				HP	RPM	LB-FT	RPM	
Diesel Engines	a/							
2.3 T/C	50S	Ranger/Bronco II	M/T	86	4200	134	2000	21.0
6.9L	50S	F-Series HD	M/T -----	170	3300	315	1400	21.5
	50S	E/F-Series HD	A/T					21.5
	ALT g/	F-Series HD	M/T -----	150	3300	285	1400	21.5
	ALT g/	E/F-Series HD	A/T					21.5

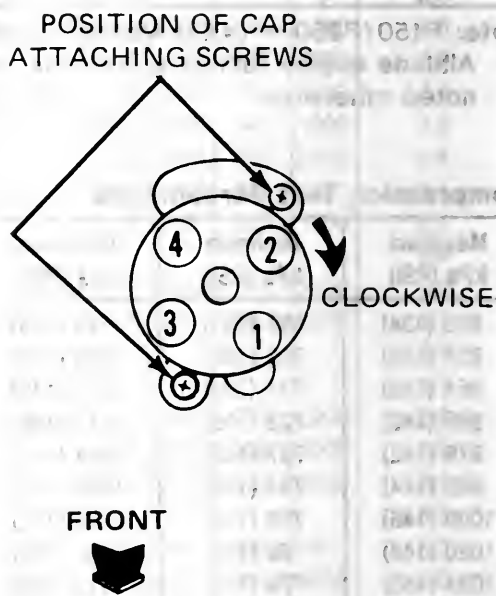
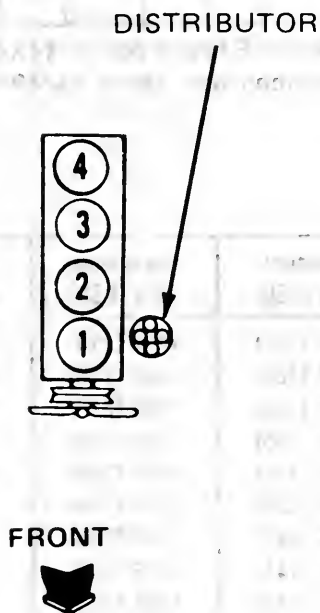
Note: F150/F250 = (4X2) Models; U160 = Bronco; F160/F260 = (4X4) Models
g/ Altitude engine ratings are at sea level conditions and same as 49/50S unless noted otherwise.

Compression Test Percentages

Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)
923 (134)	697 (101)	1199 (174)	903 (131)	1475 (214)	1103 (160)
937 (136)	703 (102)	1213 (176)	910 (132)	1489 (216)	1116 (162)
951 (138)	717 (104)	1227 (178)	917 (133)	1503 (218)	1123 (163)
965 (140)	723 (105)	1241 (180)	930 (135)	1516 (220)	1137 (165)
979 (142)	737 (107)	1254 (182)	937 (136)	1530 (222)	1144 (166)
992 (144)	744 (108)	1268 (184)	951 (138)	1544 (224)	1158 (168)
1006 (146)	758 (110)	1282 (186)	965 (140)	1558 (226)	1165 (169)
1020 (148)	765 (111)	1296 (188)	972 (141)	1572 (228)	1179 (171)
1034 (150)	779 (113)	1310 (190)	979 (142)	1585 (230)	1185 (172)
1048 (152)	786 (114)	1323 (192)	992 (144)	1599 (232)	1199 (174)
1061 (154)	792 (115)	1337 (194)	999 (145)	1613 (234)	1206 (175)
1075 (156)	806 (117)	1351 (196)	1013 (147)	1627 (236)	1220 (177)
1089 (158)	813 (118)	1365 (198)	1020 (148)	1641 (238)	1227 (178)
1103 (160)	827 (120)	1379 (200)	1034 (150)	1654 (240)	1241 (180)
1116 (162)	834 (121)	1392 (202)	1041 (151)	1668 (242)	1247 (181)
1130 (164)	848 (123)	1406 (204)	1054 (153)	1682 (244)	1261 (183)
1144 (166)	854 (124)	1420 (206)	1061 (154)	1696 (246)	1268 (184)
1158 (168)	868 (126)	1434 (208)	1075 (156)	1709 (248)	1282 (186)
1172 (170)	875 (127)	1447 (210)	1082 (157)	1723 (250)	1289 (187)
1185 (172)	889 (129)	1461 (212)	1089 (158)		

FIRING ORDER AND DISTRIBUTOR LOCATION

FIRING ORDER AND POSITION

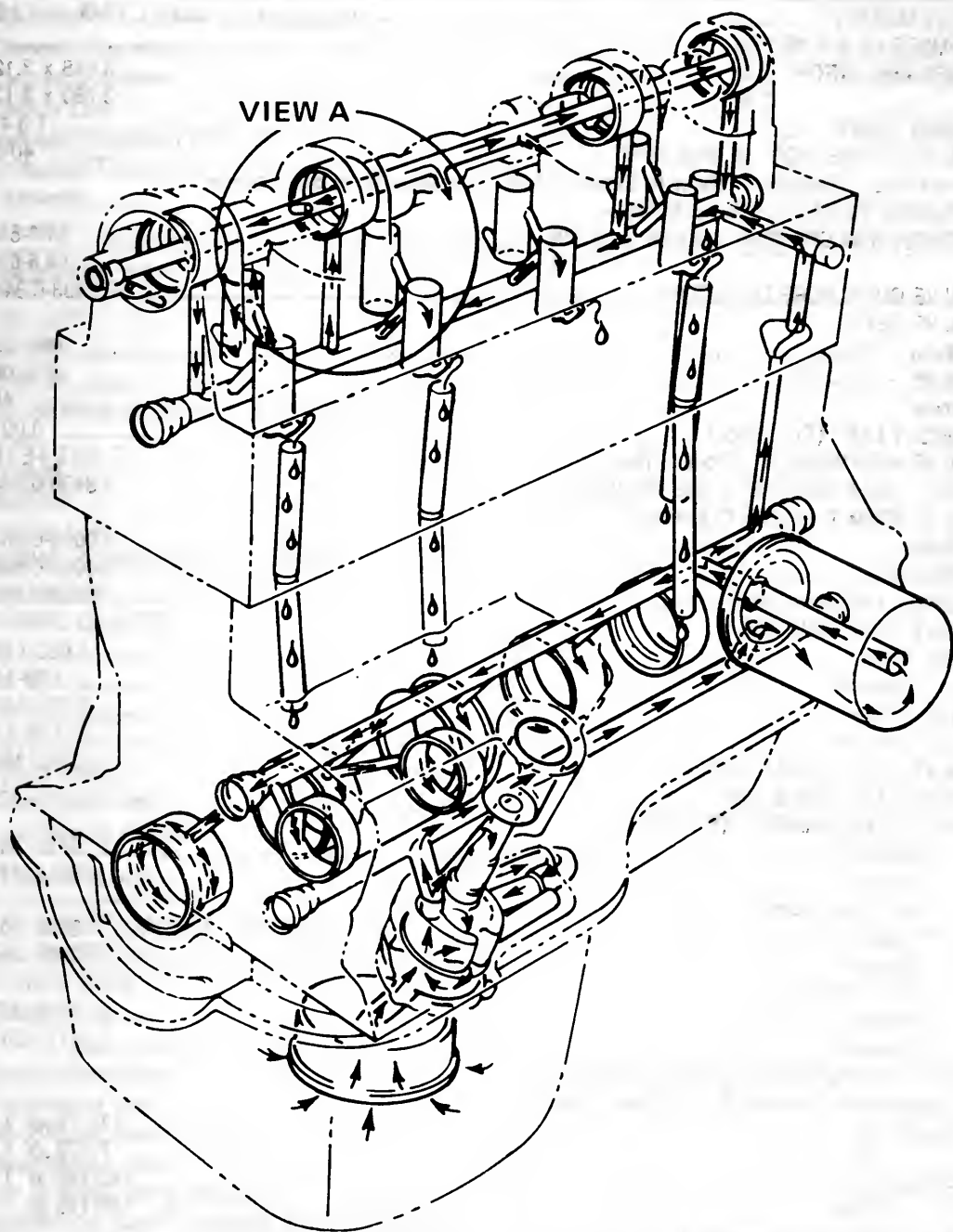


CYLINDER NUMBERING AND DISTRIBUTOR LOCATION

FIRING ORDER—1-3-4-2

2.0L & 2.3L 4-CYLINDER

OIL FLOW



SERVICE SPECIFICATIONS

GENERAL SPECIFICATIONS

DISPLACEMENT.....	2.0L and 2.3L
NUMBER OF CYLINDERS	4
BORE AND STROKE 2.0L	3.518 x 3.126
2.3L	3.780 x 3.126
FIRING ORDER	1-3-4-2
OIL PRESSURE (HOT @ 2000 RPM)	40-60
DRIVE BELT TENSION — Refer to Section 27-06. Accessory Drive Belt Service	
CYLINDER HEAD AND VALVE TRAIN	
COMBUSTION CHAMBER VOLUME (cc) 2.0L	51.0-54.0
2.3L	59.8-62.8
VALVE GUIDE BORE DIAMETER	0.3433-0.3443
VALVE SEATS	
Width — Intake060-.080
Width — Exhaust070-.090
Angle	45°
RUNOUT LIMIT (T.I.R. Max.)	0.0016
VALVE ARRANGEMENT (Front to Rear)	E-I-E-I-E-I-E-I
VALVE LASH ADJUSTER BORE DIAMETER	0.8430-0.9449
VALVE STEM TO GUIDE CLEARANCE	
Intake	0.0010-0.0027
Exhaust	0.0015-0.0032
Service Clearance Limit	0.0055 Max.
VALVE HEAD DIAMETER	
2.0L Intake	1.622-1.598
Exhaust	1.39-1.37
2.3L Intake	1.723-1.747
Exhaust	1.49-1.51
VALVE FACE RUNOUT LIMIT	0.002 Max.
VALVE FACE ANGLE LIMIT	44°
VALVE STEM DIAMETER (STANDARD)	
Intake3416-.3423
Exhaust3411-.3418
(0.015 Oversize)	
Intake3566-.3573
Exhaust3561-.3568
(0.030 Oversize)	
Intake3716-.3723
Exhaust3711-.3718
VALVE SPRINGS (With Damper Removed)	
Compression Pressure (Lb. @ Spec. Length)	
Intake 2.0L	71-79 @ 1.52
2.3L	71-79 @ 1.56
Exhaust 2.0L	142-156 @ 1.12
2.3L	159-175 @ 1.16
Free Length (Approximate) 2.0L	1.922
2.3L	1.89
Assembled Height 2.0L	1.49-1.55
2.3L	1-17/32 — 1-19/32
Service Limit	10% Pressure Loss @ Specified Length
Out of Square Service Limit	5/64 (0.078)
ROCKER ARM (Cam Follower)	
Ratio	1.64:1

SERVICE SPECIFICATIONS — CONT'D

GENERAL SPECIFICATIONS CONT'D

VALVE TAPPET, LIFTER OR ADJUSTER

Diameter (Standard)	0.8422-0.8427
Clearance-to-Bore	0.0007-0.0027
Service Limit	0.005 Max.
Hydraulic Leakdown Rate (1)	2-8 Seconds
Collapsed Tappet Gap	
Allowable	0.035-0.055 @ Cam
Desired	0.040-0.050 @ Cam

CAMSHAFT

LOBE LIFT

Intake	0.2381
Exhaust	0.2381

THEORETICAL VALVE LIFT @ ZERO LASH

Intake	0.390
Exhaust	0.390

ENDPLAY

Service Limit	0.001-0.007
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JOURNAL-TO-BEARING CLEARANCE

Service Limit	0.001-0.003
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JOURNAL DIAMETER

#1	1.7713-1.7720
#2	1.7713-1.7720
#3	1.7713-1.7720
#4	1.7713-1.7720
Runout Limit	0.005 Max. T.I.R.
Out-of-Round Limit	0.005 T.I.R. Max
Front Bearing Location	(2)0.000-0.010

CYLINDER BLOCK

HEAD GASKET SURFACE FLATNESS 0.003 in any 6"-0.006 overall

HEAD GASKET SURFACE FINISH (RMS) 60-150

CYLINDER BORE

Diameter 2.0L	3.5165-3.5201
2.3L	3.7795-3.7831
Surface Finish (RMS)	18-38
Out-of-Round Limit	0.0015
Out-of-Round Service Limit	0.005
Taper Service Limit	0.010

MAIN BEARING BORE DIAMETER 2.5902-2.5910

DISTRIBUTOR SHAFT BEARING BORE DIAMETER5155-.5170

- (1) Time required for plunger to leak down 3.18mm (1/8") of travel with 22.68 kg (50 lb.) load leakdown fluid in lash adjuster.
- (2) Distance in inches that front bearing is installed below front face of bearing tower.

SERVICE SPECIFICATIONS — CONT'D

CRANKSHAFT, FLYWHEEL AND CONNECTING ROD

MAIN BEARING JOURNAL DIAMETER	2.399-2.3982
Out-of-Round Limit	0.0006 Max.
Taper Limit	0.0006 Per Inch
Journal Runout Limit	0.002 Max.
Surface Finish (RMS)	12 Max.
Runout Service Limit	0.005
THRUST BEARING JOURNAL	
Length	1.201-1.199
CONNECTING ROD JOURNAL	
Diameter	2.0462-2.0472
Out-of-Round Limit	0.0006 Max.
Taper Limit	0.0006 Per Inch Max.
Surface Finish (RMS)	12 Max.
MAIN BEARING THRUST FACE	
Surface Finish (RMS)	35 Front/25 Rear (Max.)
Runout Limit	0.001 Max.
FLYWHEEL CLUTCH FACE	
Runout Limit	0.005
FLYWHEEL RING GEAR LATERAL RUNOUT (T.I.R.)	
Standard Transmission	0.025
Automatic Transmission	0.060
CRANKSHAFT FREE END PLAY LIMIT	0.004-0.008
Service Limit	0.012
AUXILIARY SHAFT END PLAY	0.001-0.007
CONNECTING ROD BEARINGS	
Clearance Crankshaft — Desired	0.0008-0.0015
— Allowable	0.0008-0.0026
Bearing Wall Thickness (Standard) (3)	0.0619-0.0624
MAIN BEARINGS	
Clearance to Crankshaft — Desired	0.0008-0.0015
— Allowable	0.0008-0.0026
Bearing Wall Thickness (Standard) (3)	0.0956-0.0951
AUXILIARY SHAFT BEARINGS	
Clearance to Shaft	0.0006-0.0026
CONNECTING ROD	
Piston Pin Bore Diameter 2.0L	23.104-23.145mm (.9096-.9112 in.)
2.3L	23.172-23.180mm (.9123-.9126 in.)
Crankshaft Bearing Bore Diameter	55.170-55.190mm (2.1720-2.1728 in.)
Out-of-Round Limit	0.0004
Taper Limit	0.0004
Length (Center-to-Center)	5.2031-5.2063
Alignment (Bore-to-Bore Max. Difference) (4)	
Twist	0.024
Bend	0.012
Side Clearance (Assembled to Crank)	
Standard	0.0035-0.0105
Service Limit	0.014

(3) 0.002 undersize = Add 0.001 to Standard Thickness.

(4) Pin bore and crank bearing bore must be parallel and in the same vertical plane, within the specified total difference when measured at the ends of an 8" bar — 4" on each side of rod centerline.

SERVICE SPECIFICATIONS — CONT'D

PISTONS AND RINGS

PISTON

Diameter (5)

Coded Red 2.0L	89.281-89.296mm (3.5150-3.5156 IN)
2.3L	95.961-95.9776mm (3.7780-3.7786 IN)
Coded Blue 2.0L	89.312-89.327mm (3.5162-3.5168 IN)
2.3L	95.992-96.007mm (3.7792-3.7798 IN)
0.003 Oversize 2.0L	89.342-89.357mm (3.5174-3.5180 IN)
2.3L	96.022-96.037mm (3.7804-3.7810 IN)

Piston-to-Bore-Clearance (Select Fit) 0.036-0.056mm (0.0014-0.0022 IN)

Pin Bore Diameter 23.1725-23.1800mm (0.9123-0.9126 IN)

Ring Groove Width

Compression (Top)	2.032-2.057mm (0.080-0.081 IN)
Compression (Bottom)	2.032-2.057mm (0.080-0.081 IN)
Oil 2.0L	4.801-4.826mm (0.189-0.190 IN)
2.3L	4.775-4.801mm (0.188-0.189 IN)

PISTON PIN

Length 76.5-77.2mm (3.01-3.04 IN)

Diameter

Standard	23.162-23.175mm (.9119-.9124 IN)
0.001 Oversize	23.190-23.198mm (.9130-.9133 IN)
0.002 Oversize	23.216-23.223mm (.9140-.9143 IN)

Piston-to-Pin Clearance 0.005-0.010mm (0.0002-0.0004 IN)

Pin-to-Rod Clearance Interference Fit

PISTON RINGS

Ring Width

Compression (Top)	1.956-1.981mm (0.0770-0.0780 IN)
Compression (Bottom)	1.956-1.981mm (0.0770-0.0780 IN)

Side Clearance

Compression (Top)	0.051-0.101mm (0.0020-0.0040 IN)
Compression (Bottom)	0.051-0.101mm (0.0020-0.0040 IN)

Oil Ring Snug Fit

Service Limit 0.15mm (0.006 IN) Max.

Ring Gap

Compression (Top)	0.25-0.50mm (0.010-0.020 IN)
Compression (Bottom)	0.25-0.50mm (0.010-0.020 IN)
Oil (Steel Rail)	0.38-1.40mm (0.015-0.055 IN)

(5) Measured at the piston pin bore, centerline — 90° to the pin.

SERVICE SPECIFICATIONS — CONT'D

LUBRICATION SYSTEM

OIL PUMP

Relief Valve Spring Tension (Lbs. Spec. Length)	15.2-17.2 @ 1.20"
Drive Shaft-to-Housing Bearing Clearance	0.0015-0.0030
Relief Valve-to-Bore Clearance	0.0015-0.0030
Rotor Assembly End Clearance (Assembled)	0.004 Max.
Outer Race-to-Housing Clearance	0.001-0.013
Oil Capacity (Quarts U.S.) — 2.0L	4 (6)
2.3L	5 (6)

FUEL PUMP

Static Pressure (PSI) (7)	5.0-7.0
Minimum Volume Flow (8)(9)	1 Pint in 25 Seconds
Eccentric Total Lift (Inches)	0.304-0.326

NOTES:

- (1) Time required for plunger to leak down 3.18mm (1/8") of travel with 22.68 kg (50 lb.) load leakdown fluid in lash adjuster.
- (2) Distance in inches that front bearing is installed below front face of bearing tower.
- (3) 0.002 undersize = Add 0.001 to Standard Thickness.
- (4) Pin bore and crank bearing bore must be parallel and in the same vertical plane, within the specified total difference when measured at the ends of an 8" bar — 4" on each side of rod centerline.
- (5) Measured at the piston pin bore, centerline — 90° to the pin.
- (6) Add one quart with filter change.
- (7) On engine, temperature normal, curb idle, in neutral, brakes set.
- (8) Pump to tank return line pinched off, new fuel filter in line.
- (9) Smallest Orifice = No less than 0.020" .D.

TORQUE SPECIFICATIONS

SPECIAL APPLICATIONS

Item	Torque		
	Size	N-m	Ft-Lbs
AUXILIARY SHAFT GEAR BOLT	M-10	38-54	28-40
AUXILIARY SHAFT THRUST PLATE BOLT	M-6	8-12	6-9
BELT TENSIONER (TIMING PIVOT BOLT)	M-10	38-54	28-40
BELT TENSIONER (TIMING) ADJUSTING BOLT	M-8	19-28	14-21
CAMSHAFT GEAR BOLT	M-12	68-96	50-71
CAMSHAFT THRUST PLATE BOLT	M-6	8-12	6-9
CARBURETOR TO SPACER STUD	M-8	10-20	7.5-15
CARBURETOR SPACER NUT	M-8	14-19	10-14
CARBURETOR SPACER-TO-MANIFOLD BOLT	M-8	19-28	14-21
CONNECTING ROD NUT (1)	M-9	41-49	30-36
CRANKSHAFT DAMPER BOLT	M-14	136-162	100-120
CYLINDER HEAD BOLT (2)	M-12	108-122	80-90
DISTRIBUTOR CLAMP BOLT	M-10	19-28	14-21
DISTRIBUTOR VACUUM TUBE TO MANIFOLD ADAPTER		7-11	5-8
EXHAUST MANIFOLD TO CYLINDER HEAD BOLT, STUD OR NUT (3)	M-10	22-31	16-23
FLYWHEEL TO CRANKSHAFT BOLT	M-10	73-87	56-64

TORQUE SPECIFICATIONS — CONT'D

SPECIAL APPLICATIONS — CONT'D			
ITEM	TORQUE		
	SIZE	N-m	FT-LB
FUEL PUMP TO CYLINDER BLOCK	M-8	19-28	14-21
INTAKE MANIFOLD TO CYLINDER HEAD			
BOLT/NUT — NON-TURBO (4)	M-8	19-28	14-21
INTAKE MANIFOLD TO CYLINDER HEAD			
BOLT/NUT — TURBO	M-8	18-24	13-18
MAIN BEARING CAP BOLT (5)	M-12	108-122	80-90
OIL PRESSURE SENDING WIRE TO BLOCK		11-24	8-18
OIL PUMP PICKUP TUBE TO PUMP	M-8	19-28	14-21
OIL PUMP TO BLOCK	M-8	19-28	14-21
OIL PAN DRAIN PLUG TO PAN	M-14	21-33	15-25
OIL PAN TO BLOCK	M-6	7-11	6-8
	M-8	11-13	8-10
		28-33	20-25
OIL FILTER INSERT TO CYLINDER BLOCK			
OIL FILTER TO ENGINE	(6)		
ROCKER ARM COVER TO CYLINDER HEAD	M-6	7-9	6-8
SPARK PLUG TO CYLINDER HEAD	M-14	7-13	5-10
TEMPERATURE SENDING UNIT TO BLOCK		11-24	8-18
WATER JACKET DRAIN PLUG TO BLOCK		32-37	23-28
WATER PUMP TO BLOCK BOLT	M-8	19-28	14-21
EGR VALVE TO SPACER BOLT	M-8	19-28	14-21
EGR TUBE TO EXHAUST MANIFOLD CONN.		13-14	9-11
EGR TUBE NUT		13-14	9-11
AUXILIARY SHAFT COVER BOLT	M-6	8-12	6-9
WATER OUTLET CONNECTION BOLT	M-8	19-28	14-21
CYLINDER FRONT COVER BOLT	M-6	8-12	6-9
INNER TIMING BELT COVER STUD	M-8	19-28	14-21
OUTER TIMING BELT COVER BOLT	M-6	8-12	6-9
ROCKER ARM COVER SHIELD BOLT	M-10	38-54	28-40
THERMATOR CHECK VALVE TO MANIFOLD	(7)	24-27	17-20
FUEL FILTER TO CARBURETOR		9-11	80-100 In-Lb
COMPRESSOR HOUSING BOLT (TURBO)		16-19	145-165 In-Lb
HOUSING BOLT (TURBO)		19-20	164-181 In-Lb
OUTLET ELBOW AND WASTEGATE			
ASSEMBLY — BOLT (TURBO)		19-20	164-181 In-Lb

- (1) Torque in sequence in two steps:
 - Step 1 — 34-41 N-m (25-30 ft-lb).
 - Step 2 — 41-49 N-m (30-36 ft-lb).
- (2) Torque cylinder head bolts in sequence in two steps:
 - Step 1 — 68-81 N-m (50-60 ft-lb).
 - Step 2 — 108-122 N-m (80-90 ft-lb).
- (3) Torque in sequence in two steps:
 - Step 1 — 7-9 N-m (5-7 ft-lb).
 - Step 2 — 22-31 N-m (16-23 ft-lb).
- (4) Torque in sequence in two steps:
 - Step 1 — 7.9 N-m (5-7 ft-lb).
 - Step 2 — 19-28 N-m (14-21 ft-lb) Non-Turbo.
 - Step 2 — 18-24 N-m (13-18 ft-lb) Turbo.
- (5) Torque in sequence in two steps:
 - Step 1 — 68-81 N-m (50-60 ft-lb).
 - Step 2 — 108-122 N-m (80-90 ft-lb).
- (6) 1/2 turn after gasket contacts surface — oil gasket.
- (7) Then rotate to position.

TORQUE SPECIFICATIONS — CONT'D**Ignition Systems**

Item	Torque	
	N-m	As Noted
Distributor Holddown Bolt	23-34	17-25 ft-lb
Distributor Cap to Distributor Base	2-2.5	18-23 in-lb
Stator Assy./Lower Plate Assy. to Distributor Base	1.7 min.	15 in-lb (min.)
Diaphragm Assembly to Distributor Base	1.7 min.	15 in-lb (min.)
Spark Plug to Cylinder Head	9-20	7-12 ft-lb

Carter YFA 1-V, 1-V Feedback Carburetors

Torque Specifications	N-m	In-Lb
Air Horn To Main Body	3.06-4.18	27-37
Main Body to Throttle Body Screws	5.65-6.23	50-55
Accelerator Pump Housing Screws	.68-1.24	6-11
Choke Pulldown Diaphragm Housing Screws	3.62-4.1	32-36
Feedback or Altitude Solenoid Screws (YFA-1V Feedback only)	5.1-5.65	45-50
Fast Idle Cam Retaining Screw	5.65-6.23	50-55
Choke Plate to Choke Shaft Screws	1.02-1.25	9-11
Throttle Plate to Throttle Shaft Screws	.45-.57	4-5
Main Metering Jet	2.26-2.5	20-22
Choke Cap Retaining Screws	1.92-2.26	17-20
Carburetor to Intake Manifold	17.7-19	13-14 (ft-lb)
Bracket Retaining Screw	6.8	60 in-lb
Throttle Control Bracket Retainer Nut	3.4	30 in-lb

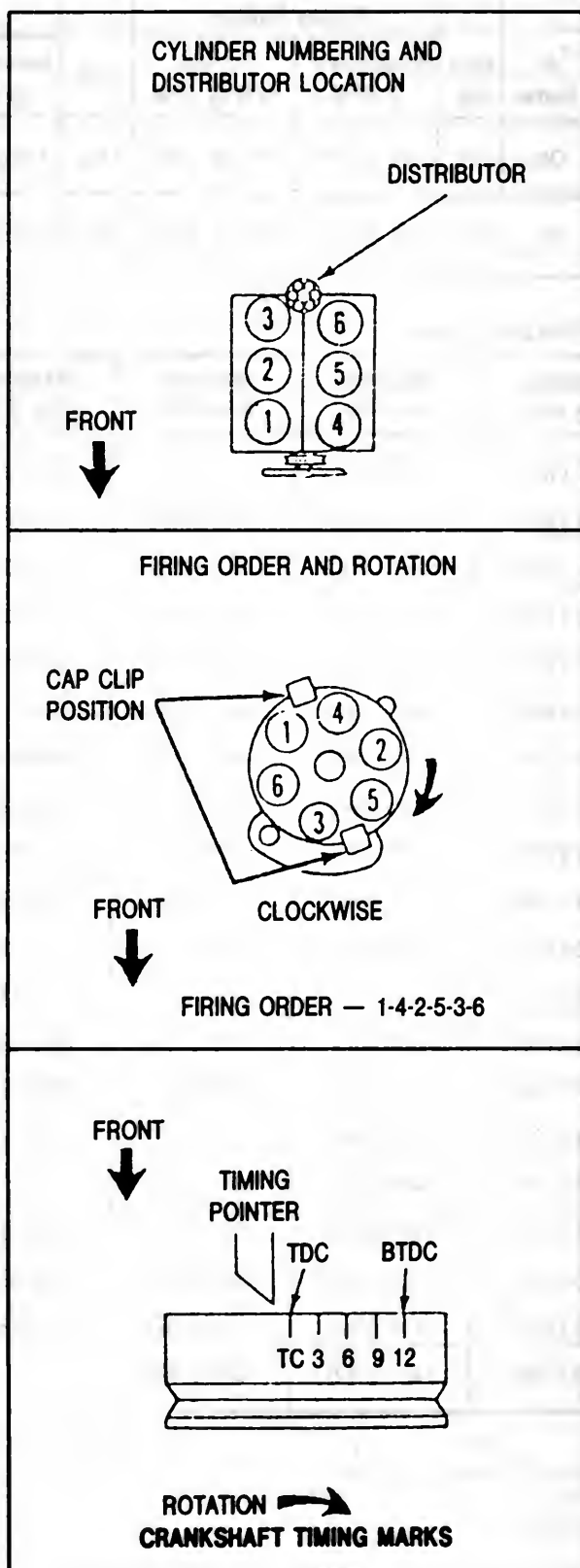
AVAILABILITY — POWER RATINGS

Availability(1)	49 States	High Alt.	Engine Ratings		Calif.	Engine Ratings	
			Horsepower @ RPM	Torque lb-ft @ RPM		Horsepower @ RPM	Torque lb-ft @ RPM
Ranger (4x2 & 4x4)....	Opt.	Opt.	115 @ 4800	150 @ 2600	Opt.	115 @ 4800	150 @ 2600
Bronco II.....	Std.	Std.	115 @ 4800	150 @ 2600	Std.	115 @ 4800	150 @ 2600

Compression Test Percentages

Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)
923 (134)	697 (101)	1199 (174)	903 (131)	1475 (214)	1103 (160)
937 (136)	703 (102)	1213 (176)	910 (132)	1489 (216)	1116 (162)
951 (138)	717 (104)	1227 (178)	917 (133)	1503 (218)	1123 (163)
965 (140)	723 (105)	1241 (180)	930 (135)	1516 (220)	1137 (165)
979 (142)	737 (107)	1254 (182)	937 (136)	1530 (222)	1144 (166)
992 (144)	744 (108)	1268 (184)	951 (138)	1544 (224)	1158 (168)
1006 (146)	758 (110)	1282 (186)	965 (140)	1558 (226)	1165 (169)
1020 (148)	765 (111)	1296 (188)	972 (141)	1572 (228)	1179 (171)
1034 (150)	779 (113)	1310 (190)	979 (142)	1585 (230)	1185 (172)
1048 (152)	786 (114)	1323 (192)	992 (144)	1599 (232)	1199 (174)
1061 (154)	792 (115)	1337 (194)	999 (145)	1613 (234)	1206 (175)
1075 (156)	806 (117)	1351 (196)	1013 (147)	1627 (236)	1220 (177)
1089 (158)	813 (118)	1365 (198)	1020 (148)	1641 (238)	1227 (178)
1103 (160)	827 (120)	1379 (200)	1034 (150)	1654 (240)	1241 (180)
1116 (162)	834 (121)	1392 (202)	1041 (151)	1668 (242)	1247 (181)
1130 (164)	848 (123)	1406 (204)	1054 (153)	1682 (244)	1261 (183)
1144 (166)	854 (124)	1420 (206)	1061 (154)	1696 (246)	1268 (184)
1158 (168)	868 (126)	1434 (208)	1075 (156)	1709 (248)	1282 (186)
1172 (170)	875 (127)	1447 (210)	1082 (157)	1723 (250)	1289 (187)
1185 (172)	889 (129)	1461 (212)	1089 (158)		

FIRING ORDER — 2.8L V-6



GENERAL SPECIFICATIONS

DISPLACEMENT	2.8L (2800cc)
NUMBER OF CYLINDERS	6
BORE AND STROKE	3.65 x 2.70
FIRING ORDER	1-4-2-5-3-6
OIL PRESSURE (hot @ 2000 RPM)	40-60
DRIVE BELT TENSION	(1)
COMPRESSION PRESSURE	(2)

CYLINDER HEAD AND VALVE TRAIN

COMBUSTION CHAMBER VOLUME (cc)	42.8-44.3
VALVE GUIDE BORE DIAMETER	0.3174-0.3184
VALVE SEATS	
Width — Intake	0.060-0.079
Width — Exhaust	0.060-0.079
Angle	45°
Runout Limit (T.I.R. Max.)	0.0015
VALVE ARRANGEMENT (Front to Rear)	L.H. = I-E-E-I-E-I R.H. = I-E-I-E-E-I
GASKET SURFACE FLATNESS	0.333 in 6", 0.0006" overall
GASKET SURFACE FINISH (RMS)	60-150
VALVE STEM-TO-GUIDE CLEARANCE	
Intake	0.0008-0.0025
Exhaust	0.0018-0.0035
Service Clearance	0.0055
VALVE HEAD DIAMETER	
Intake	1.562-1.577
Exhaust	1.261-1.276
VALVE FACE RUNOUT LIMIT	0.002 Max.
VALVE FACE ANGLE	44°
VALVE STEM DIAMETER (Std.)	
Intake	0.3159-0.3167
Exhaust	0.3149-0.3156
(0.008 Oversize)	
Intake	0.3239-0.3245
Exhaust	0.3228-0.3235
(0.016 Oversize)	
Intake	0.3318-0.3324
Exhaust	0.3307-0.3314
(0.032 Oversize)	
Intake	0.3475-0.3481
Exhaust	0.3461-0.3468
VALVE SPRINGS	
Compression Pressure (lb. @ Spec. Length)	60.0-68.0 @ 1.585 138.0-149.0 @ 1.222
Free Length (Approximate)	1.91
Assembled Height	1-37/64-1-39/64
Service Limit	(3)
Out-Of-Square	5/64 (0.078)

CYLINDER HEAD AND VALVE TRAIN — CONT'D

ROCKER ARM

Shaft Diameter.....	0.7799-0.7811
Bore Diameter.....	0.7830-0.7842
Ratio	1.46:1

PUSH ROD RUNOUT (T.I.R. Max.).....0.020

VALVE TAPPET, LIFTER OR ADJUSTER

Diameter (Std.).....	0.8736-0.8741
Clearance To Bore	0.0009-0.0024
Service Limit.....	0.005

VALVE LASH CLEARANCE (COLD)*

Intake	0.014
Exhaust	0.016

CAMSHAFT

LOBE LIFT

Intake	0.2555
Exhaust	0.2555
Allowable Lobe Lift Loss	0.005

THEORETICAL VALVE LIFT @ ZERO LASH

Intake	0.3730
Exhaust	0.3730

END PLAY0.0008-0.004

Service Limit.....	0.009
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JOURNAL-TO-BEARING CLEARANCE.....0.001-0.0026

Service Limit.....	0.006
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CAMSHAFT GEAR BACKLASH.....0.006-0.010

JOURNAL DIAMETER

#1.....	43.903-43.923 (1.7285-1.7293)
#2.....	43.522-43.542 (1.7135-1.7143)
#3.....	43.141-43.161 (1.6985-1.6992)
#4.....	42.760-42.780 (1.6835-1.6842)
Runout	0.127 (0.005) Max. T.I.R.
Out-Of-Round	0.0076 (0.0003) Max. T.I.R.

BEARING INSIDE DIAMETER

#1.....	43.948-43.968 (1.7302-1.7310)
#2.....	43.567-43.587 (1.7152-1.7160)
#3.....	43.186-43.206 (1.7002-1.7010)
#4.....	42.805-42.825 (1.6852-1.6860)

FRONT BEARING LOCATION(4) 0.040-0.060

CYLINDER BLOCK

HEAD GASKET SURFACE FLATNESS (5)

Finish (RMS).....	60-150
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CRANKSHAFT TO REAR FACE OF BLOCK RUNOUT

(T.I.R. Max.).....	0.005
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CYLINDER BLOCK — CONT'D

CYLINDER BORE

Diameter.....	3.6614-3.6630
Surface Finish (RMS).....	18.38
Out-Of-Round.....	0.0015
Out-Of-Round Service Limit.....	0.005
Taper Service Limit.....	0.010
TAPER BORE DIAMETER.....	0.8750-0.8760
MAIN BEARING BORE DIAMETER.....	2.3866-2.3874
DISTRIBUTOR SHAFT BEARING BORE DIAMETER.....	0.4534-0.4549

CRANKSHAFT AND FLYWHEEL

MAIN BEARING JOURNAL DIAMETER.....	2.2433-2.2441
Out-Of-Round.....	0.0006
Taper Limit.....	0.0006 per inch
Journal Runout.....	0.002 Max.
Surface Finish (RMS).....	12
Runout Service Limit.....	0.005
THRUST BEARING JOURNAL	
Length.....	1.039-1.041
CONNECTING ROD JOURNAL	
Diameter.....	2.1252-2.1260
Out-Of-Round.....	0.0006
Taper Limit.....	0.0006 per inch
Surface Finish (RMS).....	12 Max.
MAIN BEARING THRUST FACE	
Surface Finish.....	20 Max.
Runout (T.I.R.).....	0.001 Max.
FLYWHEEL CLUTCH FACE	
Runout.....	0.005
FLYWHEEL RING GEAR LATERAL RUNOUT (T.I.R.)	
Standard Transmission.....	0.025
Automatic Transmission.....	0.060
CRANKSHAFT FREE END PLAY.....	0.004-0.008
Service Limit.....	0.012
CONNECTING ROD BEARINGS	
Clearance To Crankshaft — Desired.....	0.0006-0.0016
— Allowable.....	0.0005-0.0022
Bearing Wall Thickness (Std.)(6).....	Red — 0.0548-0.0552
	Blue — 0.0552-0.0556
MAIN BEARING	
Clearance To Crankshaft — Desired.....	0.0008-0.0015
— Allowable.....	0.0005-0.0019
Bearing Wall Thickness (Std.)(6).....	Red — 0.0707-0.0710
	Blue — 0.0711-0.0714

- (1) Refer to Section 27-06, Accessory Drive Belt Service.
 - (2) PSI of lowest cylinder must be within 75% of highest (see part 21-01).
 - (3) 10% pressure loss @ specified length.
 - (4) Distance in inches that front edge of bearing is installed below front face of cyl. block.
 - (5) 0.003 in any 6 inches — 0.006 overall.
 - (6) 0.002 undersize = add 0.001 to standard thickness.
- * Cold or 10 minutes after stopping engine.

CONNECTING ROD, PISTON AND RINGS

CONNECTING ROD

Piston Pin Bore Diameter	0.9450-0.9452
Crankshaft Bearing Bore Diameter	2.2370-2.2378
Out-Of-Round	0.0004
Taper	0.0004
Length (Center-to-Center)	5.1386-5.1413
Alignment (Bore-to-Bore Max. Diff.)(7)	
Twist	0.006
Bend	0.002
Slide Clearance (Assembled to Crank)	
Standard	0.004-0.011
Service Limit	0.014

PISTON

Diameter(8)	
Coded Red	3.6605-3.6615
0.020 Oversize	3.6802-3.6812
Piston-to-Bore Clearance	0.0011-0.0019
Pin Bore Diameter	0.9450-0.9452
Ring Groove Width	
Compression (Top)	0.0803-0.0811
Compression (Bottom)	0.1197-0.1205
Oil	0.1579-0.1587

PISTON PIN

Length	2.835-2.866
Diameter	
Standard	0.9446-0.9450
Pin-To-Piston Clearance	0.0003-0.0006
Pin-To-Rod Clearance	Interference Fit

PISTON RINGS

Ring Width	
Compression (Top)	0.0778-0.0783
Compression (Bottom)	0.1172-0.1177
Side Clearance	
Compression (Top)	0.0020-0.0033
Compression (Bottom)	0.0020-0.0033
Oil Ring	Snug Fit
Service Limit	0.006
Ring Gap	
Compression (Top)	0.015-0.023
Compression (Bottom)	0.015-0.023
Oil Ring (Steel Rail)	0.015-0.055

LUBRICATING SYSTEM

OIL PUMP

Relief Valve Spring Tension (Lbs. at Spec. Length)	13.6-14.7 @ 139
Drive Shaft-To-Housing Bearing Clearance	0.0015-0.0030
Relief Valve-To-Bore Clearance.....	0.0015-0.0030
Rotor Assembly End Clearance (Assembled)	0.004 Max.
Outer Race-To-Housing Clearance	0.001-0.013
OIL CAPACITY (Quarts U.S.).....	4 +1

TORQUE SPECIFICATIONS — SPECIAL APPLICATIONS

Item	Size	N-m	(Ft-Lbs)
Camshaft Gear Bolt	M-10	41-49	(30-36)
Camshaft Thrust Plate	M-8	17-21	(13-16)
Connecting Rod Nut	M-8	26-33	(19-24)
Crankshaft Pulley (Cast) to Crankshaft	M-12	115-130	(85-96)
Cylinder Head Bolt	M-12	In Sequence	
	Step (1)	39-54	(29-40)
	Step (2)	54-69	(40-51)
	Step (3)	95-115	(70-85)
Flywheel to Crankshaft	M-10	64-70	(47-52)
Front Cover to Cyl. Block	M-8	17-21	(13-16)
Front Plate to Cyl. Block	M-8	13-17	(10-13)
Fuel Pump to Cyl. Block	M-8		
	Step (1) Hand Start Each Bolt		
	Minimum 2 Threads		
	Step (2) Torque Each	2-8	(1.5-6)
	Step (3) Torque Each	16-18	(12-14)
	Step (4) Torque Each	21-25	(15-18)
Intake Manifold (Bolt/Nut)	M-8	In Sequence	
	Step (1) Hand Start & Snug Nuts		
	@ Positions (3) & (4)		
	Step (2) Torque Each	4-8	(3-6)
	Step (3) Torque Each	8-15	(6-11)
	Step (4) Torque Each	15-21	(11-15)
	*Step (5) Torque Each	21-25	(15-18)
	*Repeat After Warm Up		
Intake Manifold Stud to	M-8	14-16	(10-12)
Cyl. Block Main Bearing Cap Bolt	M-12	88-102	(65-75)

TORQUE SPECIFICATIONS — SPECIAL APPLICATIONS (Cont'd)

Item	Size	N-m	(Ft-Lbs)
Timing Pointer to Front Cover	M-6	7-9	(5-7)
Oil Pump Pick Up Tube to Pump	M-6	9-13	(6-10)
Oil Pickup Tube Support to Main Cap (Nut)	M-8	17-21	(12-15)
Oil Pump Case	M-6	9-13	(6-10)
Oil Pan to Cyl. Block In Sequence	M-6	7-10	(5-8)
Oil Filter Adapter to Cyl. Block (Bolt)		20-40	(15-30)
Oil Pan Drain Plug	M-14	21-28	(15-21)
Rocker Cover to Cyl. Head	M-6	4-7	(3-5)
Oil Filter		(9)	
Rocker Arm Shaft Support Bolt	M-10	59-67	(43-50)
Water Pump to Front Cover	M-6	9-12	(7-9)
Water Outlet Connection	M-8	17-21	(12-15)
Water Jacket Drain Plug	½-27 NPSF	20-25	(14-18)
Spark Plug	M-14	25-38	(18-28)
Alternator Mounting Bracket to Cyl. Block	M-10	40-55	(29-40)
Alternator Mounting Bracket to Cyl. Head	M-8(2)	20-30	(14-22)
	M-10	40-55	(29-40)
Alternator Pivot Bolt	⅞	61-82	(45-61)
Alternator Adjustment Arm to Front Cover	M-12	70-95	(60-70)
Alternator Adj. Arm to Alternator	⅞	70-95	(60-70)
Air Conditioning Pulley to Crank Pulley	M-8	26-38	(19-28)
Fan to Fan Clutch	M-6	8-11	(6-8)
Fan Clutch to Water Pump Hub	LH M-31	21-34	(15-25)
Exhaust Manifold to Cyl. Head (Bolt)	M-10	27-40	(20-30)
Exhaust Manifold to Cyl. Head (Stud)	M10xM8	27-40	(20-30)
Heat Shroud to Exh. Manifold Stud (Nut)	M-8	19-30	(14-22)
Heat Shroud Inner to Heat Shroud Outer	M-6	5-7	(50-65 in-lbs)
Exhaust Gas Oxygen Sensor to Exh. Manifold		39-43	(28-32)
Knock Sensor Assy. to Block		40-54	(30-40)
Carb. Spacer to Intake (Socket Head Screw)	M-8	20-30	(14-22)
Carb. Spacer to Carb. (Stud)	M-8	8 Max.	(6 Max.)
Carb. Spacer to Carb. (Nut)	M-8	16-20	(12-14)
EGR to Carb. Spacer (Stud)	M-8	3-10	(2-7)
	M-10	3-10	(2-7)
EGR Valve to Carb. Spacer (Nut)	M-8	20-30	(14-22)
	M-10	20-30	(14-22)
Fuel Line to Fuel Pump & Filter		20-24	(14-18)

TORQUE SPECIFICATIONS — SPECIAL APPLICATIONS (Cont'd)

Item	Size	N-m	(Ft-Lbs)
Oil Level Indicator Tube to Block	M-10	40-55	(30-40)
Pulley/Water Pump	M-6	20-30	(14-22)
Pulley/Thermactor Pump	M-6	17-25	(150-220 in-lbs)
Thermactor Pump Pivot Bolt	M-10	40-55	(30-40)
Thermactor Pump Adj. Arm (Pump & Front Cover)	M-10	40-55	(30-40)
Thermactor Tube Assy. to Exhaust Manifold	M-8	20-30	(14-22)

TORQUE SPECIFICATIONS — GENERAL APPLICATIONS

U.S. Thread Sizes	N-m	(Ft-Lbs)
1/4-20	8-12	(6-9)
5/16-181	16-24	(12-18)
5/16-24	19-27	(14-20)
3/8-16	30-43	(22-32)
3/8-24	37-52	(27-38)
7/16-14	55-75	(40-55)
7/16-20	55-81	(40-60)
1/2-13	75-108	(55-80)
Metric Thread Sizes	N-m	(Ft-Lbs)
M-6	8-12	(6-9)
M-8	19-28	(14-21)
M-10	38-54	(28-40)
M-12	68-96	(50-71)
M-14	108-155	(80-114)
Pipe Thread Sizes	N-m	(Ft-Lbs)
1/8	5-8	(6.8-10.8)
1/4	12-18	(16.3-24.4)
3/8	22-23	(29.8-31.2)
1/2	25-35	(33.9-47.5)

- NOTE: Oil threads with engine oil unless the threads require oil or water resistant sealer.
- Standard torque limits are for all other fasteners not shown in the special torque charts.

- (7) Pin and crank bearing bore must be parallel and in same vertical plane within the specified total difference when measured at ends of an 8" bar, 4" on each side of rod centerline.
- (8) Measured at the piston pin bore centerline at 90° to the pin.
- (9) One-half turn after gasket contacts sealing surface with oiled gasket.

TORQUE SPECIFICATIONS — CONT'D

General Applications

U.S. Thread Sizes	N-m	(Ft-Lbs)
1/4-20	8-12	(8-9)
5/16-18	16-24	(12-18)
5/16-24	19-27	(14-20)
3/8-16	30-43	(22-32)
3/8-24	37-52	(27-38)
7/16-14	55-75	(40-55)
7/16-20	55-81	(40-60)
1/2-13	75-108	(55-80)
Metric Thread Sizes	N-m	(Ft-Lbs)
M6	8-12	(6-9)
M8	19-28	(14-21)
M10	38-54	(28-40)
M12	68-96	(50-71)
M14	108-155	(80-114)
Pipe Thread Sizes	N-m	(Ft-Lbs)
1/8	5-8	(6.8-10.8)
1/4	12-18	(16.3-24.4)
3/8	22-23	(29.8-31.2)
1/2	22-35	(33.9-47.5)

● NOTE: Oil threads with engine oil unless the threads require oil or water resistant sealer.
 ● Standard torque limits are for all other fasteners not shown in the special torque charts.

Engine

Item	Size	N-m	(Ft-Lbs)
Camshaft Gear Bolt	M-10	41-49	(30-36)
Camshaft Thrust Plate	M-8	17-21	(13-16)
Connecting Rod Nut	M-8	26-33	(19-24)
Crankshaft Pulley (Cast) to Crankshaft	M-12	115-130	(85-96)
Cylinder Head Bolt	M-12	In Sequence	
	Step (1)	39-54	(29-40)
	Step (2)	54-69	(40-51)
	Step (3)	95-115	(70-85)
Flywheel to Crankshaft	M-10	64-70	(47-52)
Front Cover to Cyl. Block	M-8	17-21	(13-16)
Front Plate to Cyl. Block	M-8	13-17	(10-13)
Fuel Pump to Cyl. Block	M-8		
	Step (1) Hand Start Each Bolt Minimum 2 Threads		
	Step (2) Torque Each	2-8	(1.5-6)
	Step (3) Torque Each	18-18	(12-14)
	Step (4) Torque Each	21-25	(15-18)

TORQUE SPECIFICATIONS — CONT'D

Engine — Cont'd

Item	Size	N·m	(Ft·Lbs)
Intake Manifold (Bolt/Nut)	M-8	In Sequence	
		Step (1) Hand Start & Snug Nuts	
		@ Positions (3) & (4)	
	Step (2) Torque Each	4-8	(3-6)
	Step (3) Torque Each	8-15	(6-11)
	Step (4) Torque Each	15-21	(11-15)
	*Step (5) Torque Each	21-25	(15-18)
	*Repeat After Warm Up		
Intake Manifold Stud to Cyl. Block	M-8	14-16	(10-12)
Main Bearing Cap Bolt	M-12	88-102	(65-75)
Timing Pointer to Front Cover	M-6	7-9	(5-7)
Oil Pump Pick Up Tube to Pump	M-6	9-13	(6-10)
Oil Pickup Tube Support to Main Cap (Nut)	M-8	17-21	(12-15)
Oil Pump Case	M-6	9-13	(6-10)
Oil Pan to Cyl. Block in Sequence	M-6	7-10	(5-8)
Oil Filter Adaptor to Cyl. Block (Bolt)		20-40	(15-30)
Oil Pan Drain Plug	M-14	21-28	(15-21)
Rocker Cover to Cyl. Head	M-6	4-7	(3-5)
Oil Filter		One-half turn after gasket contacts sealing surface with oiled gasket.	
Rocker Arm Shaft Support Bolt	M-10	59-67	(43-50)
Water Pump to Front Cover	M-6	9-12	(7-9)
Water Outlet Connection	M-8	17-21	(12-15)
Water Jacket Drain Plug	1/8-27 NPSF	20-25	(14-18)
Spark Plug	M-14	25-38	(18-28)
Alternator Mounting Bracket to Cyl. Block	M-10	40-55	(29-40)
Alternator Mounting Bracket to Cyl. Head	M-8(2)	20-30	(14-22)
	M-10	40-55	(29-40)
Alternator Pivot Bolt	7/16	61-82	(45-61)
Alternator Adjustment Arm to Front Cover	M-12	70-95	(60-70)
Alternator Adj. Arm to Alternator	3/8	70-95	(60-70)
Air Conditioning Pulley to Crank Pulley	M-8	26-38	(19-28)
Fan to Fan Clutch	M-6	8-11	(6-8)
Fan Clutch to Water Pump Hub	LH M-31	21-34	(15-25)
Exhaust Manifold to Cyl. Head (Bolt)	M-10	27-40	(20-30)
Exhaust Manifold to Cyl. Head (Stud)	M10xM8	27-40	(20-30)
Heat Shroud to Exh. Manifold Stud (Nut)	M-8	19-30	(14-22)
Heat Shroud Inner to Heat Shroud Outer	M-6	5-7	(50-65 in-lbs)
Exhaust Gas Oxygen Sensor to Exh. Manifold		39-43	(28-32)
Knock Sensor Assy. to Block		40-54	(30-40)
Carb. Spacer to Intake (Socket Head Screw)	M-8	20-30	(14-22)
Carb. Spacer to Carb. (Stud)	M-8	8 Max.	(6 Max.)

TORQUE SPECIFICATIONS — CONT'D

Engine — Cont'd

Item	Size	N·m	(Ft-Lbs)
Carb. Spacer to Carb. (Nut)	M-8	16-20	(12-14)
EGR to Carb. Spacer (Stud)	M-8	3-10	(2-7)
	M-10	3-10	(2-7)
EGR Valve to Carb. Spacer (Nut)	M-8	20-30	(14-22)
	M-10	20-30	(14-22)
Fuel Line to Fuel Pump & Filter		20-24	(14-18)
Oil Level Indicator Tube to Block	M-10	40-55	(30-40)
Pulley/Water Pump	M-6	20-30	(14-22)
Pulley/Thermactor Pump	M-6	17-25	(150-220 in-lbs)
Thermactor Pump Pivot Bolt	M-10	40-55	(30-40)
Thermactor Pump Adj. Arm (Pump & Front Cover)	M-10	40-55	(30-40)
Thermactor Tube Assy. to Exhaust Manifold	M-8	20-30	(14-22)

Ignition System

Description	N·m	Ft-Lbs
Distributor Hold Down Bolts	23-34	17-25
Distributor Cap Adapter Holddown Screws	2.8-3.9	2.1-2.9
Distributor Rotor Holddown screws	2.8-3.9	2.1-2.9
Spark Plugs	7-20	10-15
TFI Ignition Module Mounting Screws	1.1-1.8	9-16 lb-in

TORQUE SPECIFICATIONS — CONT'D**Engine — Cont'd****2150 2-V Carburetor**

Description	N-m	In-Lbs
Air Horn To Main Body	3.06-4.18	27-37
Fuel Inlet Valve Seat	5.08	45
Accelerator Pump Diaphragm Cover	1.47-2.25	13-20
Choke Pulldown Diaphragm	2.26-3.38	20-30
Aneroid Assembly To Main Body	2.26-3.38	20-30
Fast Idle Lever Retaining Nut	2.26-3.16	20-28
Enrichment Valve	12-13	100-120
Enrichment Valve Cover	1.47-2.25	13-20
Accelerator Pump Discharge Screw	7.35-9.60	65-85
Main Jets	3.16	28
Choke Housing Retaining Screw	1.47-2.25	13-20
Choke Plate Screws	.46-1.01	4-9
Carburetor Body Flange To Intake Manifold	20-21	14-16 (ft-lbs)
Air Cleaner Anchor Screw	7-9	5-7 (ft-lbs)
Air Cleaner Wing Nut (Steel)	1.70-2.82	15-25
Air Cleaner Wing Nut (Plastic)	2.83-3.95	25-35
Temperature Compensated Pump Valve Cover	2.14-2.71	19-24
Integral Altitude Compensator	2.26-3.39	20-30
Feedback Duty Cycle Solenoid	2.26-3.39	20-30
Throttle Position Sensor	1.24-1.81	11-16
Feedback Booster Venturi Screw	7.34-9.6	65-85
Temperature Compensated Pump	2.14-2.71	19-24

AVAILABILITY/POWER RATINGS

Availability	49 States	High Alt.	Engine Ratings	
			Horsepower @ RPM	Torque Lb-Ft @ RPM
F-150 4x2 w/Man. Trans. & 2.47 axle ...	STD	NA	118 @ 3000	253 @ 1400
F-150 4x2 exc. above & AOD Trans.....	OPT	STD	120 @ 3200	251 @ 1600
F-150 4x2 w/AOD Trans.	OPT	OPT	121 @ 3200	250 @ 1600
F-250 4x2.....	STD(2)	STD(2)	120 @ 3200	251 @ 1600
F-250 HD 4x2.....	STD(4)	STD(4)	119 @ 3200	230 @ 2000
F-350 4x2.....	STD(3)(4)	STD(3)(4)	119 @ 3200	230 @ 2000
F-150 4x4.....	STD	STD	120 @ 3200	251 @ 1600
F-250 4x4 Under 8500 lbs. GVWR	STD	STD	120 @ 3200	251 @ 1600
Econoline E-150/250 w/Man. Trans.....	STD	STD	121 @ 3200	250 @ 1600
Econoline E-150/250 w/Auto. Trans.....	STD	STD	121 @ 3200	250 @ 1600
Econoline E-350 Exc. Parcel Delivery Van, RV & Commercial Cutaway.....	STD	STD	119 @ 3200	230 @ 2000
Econoline E-350 Parcel Delivery Van.....	STD	STD	119 @ 3200	230 @ 2000
RV Cutaway.....	STD(6)	STD(6)	119 @ 3200	230 @ 2000
Econoline E-350 Commercial Cutaway.....	STD	STD	119 @ 3200	230 @ 2000
Club Wagon E-150 w/Man. Trans.	STD	STD	121 @ 3200	250 @ 1600
Club Wagon E-150 w/Auto. Trans.....	STD	STD	121 @ 3200	250 @ 1600
Club Wagon, Super Wagon E-250.....	STD	STD	119 @ 3200	230 @ 2000
Super Wagon E-350.....	STD	STD	119 @ 3200	230 @ 2000
Bronco.....	STD	STD	120 @ 3200	251 @ 1600

(1) No extra cost.

(2) NA w/Under 8500 lbs. GVWR Regular Cab Chassis Cab.

(3) NA w/133" wb. models, 136.8" wb. SRW Regular Cab Chassis Cab or 136.8" & 160.8" wb. Regular Cab Chassis Cab w/Payload Pkg. No. 2.

(4) 7.5L (460) 4V V-8 recommended for models over 8500 lbs. GVWR Completed w/Second Unit Bodies that add large frontal areas.

(5) NA w/SuperVan.

(6) Available w/Payload Pkg. No. 1 only.

Powertrain — Gasoline Engines — 4.9L I-6

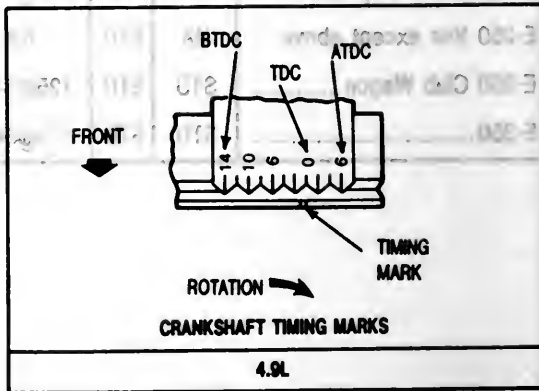
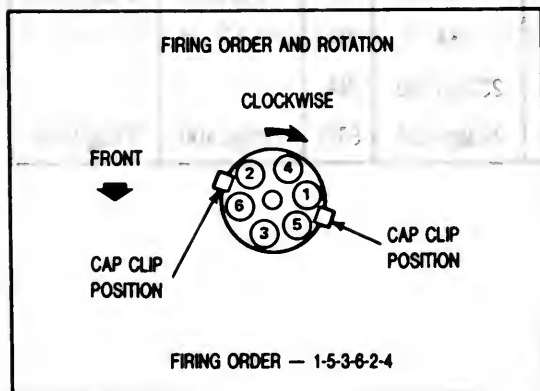
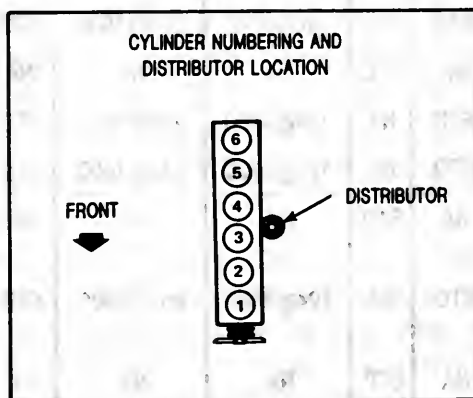
AVAILABILITY/POWER RATINGS — CONT'D

Vehicle	49 States	High Alt.	Engine Ratings		Calif.	Engine Ratings	
			Horsepower @ RPM	Torque lb-ft @ RPM		Horsepower @ RPM	Torque lb-ft @ RPM
F-150 4x2 w/Man. Trans. & 2.47 axle.....	STD	NA	119@3000	258@1400	NA	—	—
F-150 4x2 w/Man. Trans....	NA	STD	124@3400	251@1800	NA	—	—
F-150 4x2 except above	STD	STD	120@3200	245@1600	STD	120@3200	245@1600
F-150 4x4 w/Man. Trans....	STD	STD	124@3400	251@1800	STD	124@3400	251@1800
F-150 4x4 w/Auto. Trans.	STD	STD	120@3200	245@1600	STD	120@3200	245@1600
F-250 4x2 w/Man. Trans....	STD	STD	124@3400	251@1800	STD	124@3400	251@1800
F-250 4x2 w/Auto. Trans.	STD	NA	120@3200	245@1600	STD	120@3200	245@1600
F-250 4x2 w/Auto. Trans.	NA	STD	NA	NA	NA	—	—
F-250 4x4 w/Man. Trans....	STD	STD	124@3400	251@1800	STD	124@3400	251@1800
F-250 4x4 w/Auto. Trans.	STD	NA	120@3200	245@1600	STD	120@3200	245@1600
F-250 4x4 Auto. Trans.....	NA	STD	NA	NA	NA	—	—
F-250 HD 4x2.....	STD	STD	125@3400	233@1200	NA	—	—
F-350 4x2.....	STD	STD	125@3400	233@1200	NA	—	—
Bronco w/Man. Trans.	STD	STD	124@3400	251@1800	STD	124@3400	251@1800
Bronco w/Auto. Trans.....	STD	NA	120@3200	245@1600	STD	120@3200	245@1600
Bronco w/Auto. Trans.....	NA	STD	NA	NA	NA	—	—
E-150 w/Auto. OD Trans.	STD	NA	124@3400	251@1800	STD	124@3400	251@1800
E-150 except above.....	STD	NA	120@3200	245@1600	STD	120@3200	245@1600
E-150 except above.....	NA	STD	NA	NA	NA	—	—
E-250 Van w/Auto. OD Trans.	STD	NA	124@3400	251@1800	STD	124@3400	251@1800
E-250 Van w/Auto. OD Trans.	NA	STD	NA	NA	NA	—	—
E-250 Van except above	STD	NA	120@3200	245@1600	STD	120@3200	245@1600
E-250 Van except above	NA	STD	NA	NA	NA	—	—
E-250 Club Wagon	STD	STD	125@3400	233@1200	NA	—	—
E-350	STD	STD	125@3400	233@1200	STD	125@3400	233@1200

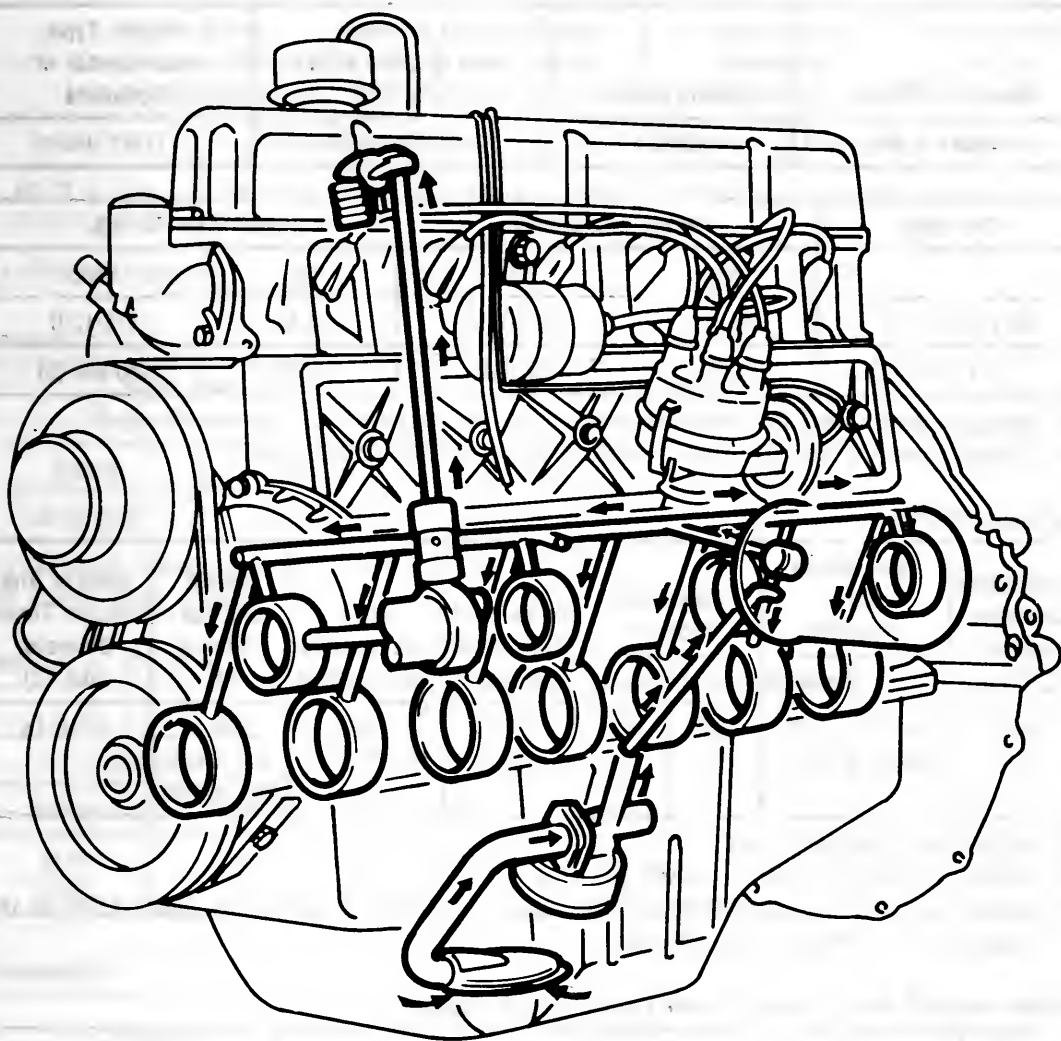
COMPRESSION TEST PERCENTAGES

Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)
923 (134)	697 (101)	1199 (174)	903 (131)	1475 (214)	1103 (160)
937 (136)	703 (102)	1213 (176)	910 (132)	1489 (216)	1116 (162)
951 (138)	717 (104)	1227 (178)	917 (133)	1503 (218)	1123 (163)
965 (140)	723 (105)	1241 (180)	930 (135)	1516 (220)	1137 (165)
979 (142)	737 (107)	1254 (182)	937 (136)	1530 (222)	1144 (166)
992 (144)	744 (102)	1268 (184)	951 (138)	1544 (224)	1158 (168)
1006 (146)	758 (110)	1282 (186)	965 (140)	1558 (226)	1165 (169)
1020 (148)	765 (111)	1296 (188)	972 (141)	1572 (228)	1179 (171)
1034 (150)	779 (113)	1310 (190)	979 (142)	1585 (230)	1185 (172)
1048 (152)	786 (114)	1323 (192)	992 (144)	1599 (232)	1199 (174)
1061 (154)	792 (115)	1337 (194)	999 (145)	1613 (234)	1206 (175)
1075 (156)	806 (117)	1351 (196)	1013 (147)	1627 (236)	1220 (177)
1089 (158)	813 (118)	1365 (198)	1020 (148)	1641 (238)	1227 (178)
1103 (160)	827 (120)	1379 (200)	1034 (150)	1654 (240)	1241 (180)
1116 (162)	834 (121)	1392 (202)	1041 (151)	1668 (242)	1247 (181)
1130 (164)	848 (123)	1406 (204)	1054 (153)	1682 (244)	1261 (183)
1144 (166)	854 (124)	1420 (206)	1061 (154)	1696 (246)	1268 (184)
1158 (168)	868 (126)	1434 (208)	1075 (156)	1709 (248)	1282 (186)
1172 (170)	875 (127)	1447 (210)	1082 (157)	1723 (250)	1289 (187)
1185 (172)	889 (129)	1461 (212)	1089 (158)		

Firing Order, Distributor Location and Timing Marks



OIL FLOW



SERVICE SPECIFICATIONS

General Specifications

Bore and Stroke	Firing Order	Oil Pressure Hot @ 2000 RPM kPa (PSI)	Engine Type and Number of Cylinders
4.00 x 3.98	153624	275 (40-60)	O.H.V. I-6

Belt Size	Newly Installed(a)		Used Over 10 Min.	
	Kg	(lbs)	Kg	(lbs)
All except 1/4"	55-72	(120-160)	34-54	(75-120)
1/4" Only	22-36	(50-80)	18-27	(40-60) (b)

(a) Tension measured immediately after belt is installed.

(b) If less than 18 kg (40 lbs), readjust to 18-27 kg (40-60 lbs.)

Cylinder Head

Combustion Chamber Volume C.C. (3)	Valve Guide Bore Diameter		Valve Seat Width (1)		Valve Seat Runout TIR Maximum	Valve Arrangement Front to Rear	Gasket Surface Flatness (2)	Rocker Arm Fulcrum Thread Diameter Std. (1)
	Intake	Exhaust	Intake	Exhaust				
76.0- 79.0	.3433- .3443	.3433- .3443	.060- .080	.070- .090	.002	E-I-E-I-E-I- E-I-E-I-E-I	.006 in any 6 in. .007 overall	5/16-18

(1) Valve seat angle — 45°.

(2) Gasket surface finish — RMS 60-150.

(3) Compression pressure (PSI) of the lowest cylinder must be at least 75% of the highest to be within specification.

Valve Rocker Arm Shaft, Push Rods and Tappets

Rocker Arm Lift Ratio to 1	Push Rod Runout TIR Maximum	Valve Tappet or Lifter			Collapsed Tappet Gap (Clearance)	
		Standard Diameter	Clearance to Bore (1)	Hydraulic Lifter Leakdown Rate (2)	Allowable	Desired
1.61	.015	.8740-.8745	.0007-.0027	10 to 50 seconds for 1/16 travel	.100-.200	.125-.175

(1) Service limit — .005.

(2) Time required for plunger to leakdown .0625 under load of 50 lbs. using leakdown fluid in tappet.

SERVICE SPECIFICATIONS — CONT'D

Valve Springs

Valve Spring Compression Pressure Lbs. @ Specified Height		Valve Spring Free Length (Approximate)		Valve Spring Assembled Height (2)		Valve Spring Out Of Square
Intake (1)	Exhaust	Intake	Exhaust	Intake	Exhaust	Maximum
66-74 @ 1.64 166-184 @ 1.24	66-74 @ 1.470 166-184 @ 1.07	1.96	1.78	1.61-1.67	1.44-1.50	5/64 (.078)

(2) Pad to retainer.

Valves

Valve Stem to Guide Clearance (1)		Valve Head Diameter (2)		Valve Face Runout TIR Maximum
Intake	Exhaust	Intake	Exhaust	
.0010-.0027	.0010-.0027	1.769-1.793	1.551-1.569	.0020

(1) Service clearance — .0055 Maximum.

(2) Valve face angle — 44°.

Valves — Cont'd

Valve Stem Diameter					
Standard		.015 Oversize		.030 Oversize	
Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
.3416- .3423	.3416- .3423	.3566- .3573	.3566- .3573	.3716- .3723	.3716- .3723

Camshaft

Lobe Lift (1)		Camshaft End Play		Camshaft Journal To Bearing Clearance (2)
Intake	Exhaust	End Play	Service Limit	
.249 .247 (3)	.249 .247 (3)	.001-.007	.009	.001-.003

(1) Maximum allowable lift loss — .005.

(2) Service clearance — .006.

(3) F-150 4 x 2 w/2.47:1 or 2.75:1 axle ratio and manual transmission (49S).

SERVICE SPECIFICATIONS — CONT'D

Camshaft Drive

Camshaft Journal Diameter — Standard (1)				Camshaft Bearing Inside Diameter				Camshaft Front Bearing Location (2)	Assembled Gear Face Runout (3)	
No. 1	No. 2	No. 3	No. 4	No. 1	No. 2	No. 3	No. 4		Crankshaft	Camshaft
2.017-2.018	2.017-2.018	2.017-2.018	2.017-2.018	2.019-2.020	2.019-2.020	2.019-2.020	2.019-2.020	.020-.035	.005	.005

(1) Camshaft journal runout — .008 TIR maximum.

(2) Distance in inches that front edge of the bearing is installed below the front face of the cylinder block.

(3) Gear backlash — .004-.100.

Cylinder Block

Cylinder Bore Diameter (1)	Main Bearing Bore Diameter (2)	Distributor Shaft Bearing Bore Diameter	Head Gasket Surface Flatness	Head Gasket Surface Finish	Tappet Bore Diameter
4.0000-4.0048	2.5902-2.5910	.5155-.5165	.003 in any 6 in. .006 overall	RMS 60-150	.8752-.8767

(1) Maximum out-of-round .0015, Service limit — .005, Maximum taper service limit — .010, Cylinder bore surface finish RMS 18-38, Bore taper service limit — .010

(2) Crankshaft to rear face of block runout. TIR maximum .005

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel

Main Bearing Journal Diameter(1)	Main Bearing Journal Runout TIR Maximum(2)	Main Bearing Thrust Face Runout TIR Maximum	Main Bearing Journal Taper Maximum Per Inch	Thrust Bearing Journal Length	Main and Rod Bearing Journal Finish RMS Maximum	Main Bearing Thrust Face Finish RMS Maximum
2.3982-2.3990	.002	.001	.0005	1.1990-1.2010	12	35 Front — 25 Rear

(1) Maximum out-of-round — .0006.

(2) Service limit — .005.

Crankshaft and Flywheel — (Cont'd)

Connecting Rod Journal Diameter(1)	Connecting Rod Journal Taper Per Inch Maximum	Crankshaft Free End Play(2)	Flywheel Clutch Face Runout Assembled	Flywheel Ring Gear Lateral Runout TIR		Flywheel Clutch Face Runout
				Std. Trans.	Auto. Trans.	
2.1228-2.1236	.0006	.004-.008	.010	.040	.060	0.010

(1) Maximum out-of-round — .0006.

(2) Service limit — .012.

Crankshaft Bearings

Connecting Rod Bearing to Crankshaft Clearance Selective Fit			Main Bearing to Crankshaft Clearance Selective Fit		
Desired	Allowable	Bearing Wall Thickness Std.(1)	Desired	Allowable	Bearing Wall Thickness Std.(1)
.0008-.0015	.0007-.0024	.0752-.0757	.0008-.0015	.0010-.0028	.0951-.0956

(1) For .002 undersize add .001 to standard wall thickness.

Connecting Rod

Piston Pin Bore or Bushing I.D.	Rod Bearing Bore I.D.(1)	Rod Length Center to Center	Connecting Rod Alignment Maximum Total Difference		Rod to Crankshaft Assembled Side Clearance(3)
			Twist(2)	Bend(2)	
.9734-.9742	2.2750-2.2758	6.2082-6.2112	.024	.012	.006-.013

(1) Connecting rod bearing bore maximum out-of-round — .0006.

(2) Pin bushing and crankshaft bore must be parallel and in same vertical plane with-in specified total difference when measured at the ends of an 8-inch long bar, 4 inches on each side of rod centerline.

(3) Service limit — .018.

SERVICE SPECIFICATIONS — CONT'D

Piston

Diameter(1)			Piston to(3) Bore Clearance	Piston Pin Bore Diameter	Ring Groove Width Compression		
Coded Red	Coded Blue	.003 Oversize	Selective Fit		Top	Bottom	Oil
3.9982- 3.9988	3.9994- 4.0000	4.0008- 4.0014	.0010- .00180	.9754- .9757	.080-.081	.080-.081	.188-.189

(1) Measured at the piston pin bore centerline at 90° to the pin.

(2) Over 8500 Lbs. GVW.

(3) Rebuild specification only.

Piston Pin

Length	Diameter			To Piston Pin Bore Clearance(1)	To Connecting Rod Bushing Clearance
	Standard	.001 Oversize	.002 Oversize		
3.150-3.170	.9749-.9754	.9760-.9763	.9770-.9773	.0002-.0004(2)	Interference Fit

(1) Selective Fit.

(2) Under 8500 Lbs. GVW — .0003-.0005

Piston Rings

Ring Width Compression		Side Clearance Compression(1)			Ring Gap Compression		
Top	Bottom	Top	Bottom	Oil	Top	Bottom	Oil(2)
.0774-.0781	.0770-.0780	.0019-.0036	.002-.004	Snug	.010-.020	.010-.020	.015-.055

(1) Service limit — .002 maximum increase in clearance.

(2) Steel rail.

Oil Pump and Oil Capacity

Relief Valve Spring Pressure Lbs. @ Specified Length	Driveshaft to Housing Clearance	Relief Valve to Housing Clearance	Rotor Assembly End Clearance	Outer Race to Housing Clearance	Engine Oil Capacity			Inner(2) to Outer Rotor Tip Clearance
					U.S. Quarts	Imperial Quarts	Liters	
20.6-22.6 @ 2.49	.0015-.0030	.0015-.0030	.004 Maximum	.001-.013	5	4-2	4-7	.012 Maximum

(1) Add 1 U.S. quart (or equivalent in Imperial Quarts or Liters) when replacing filter.

(2) With feeler gauge inserted 1/2 inch minimum and rotor removed from pump housing.

SERVICE SPECIFICATIONS — CONT'D

Fuel Pump — Mechanical

Static Pressure (PSI)(1)	Volume Flow — Minimum(1)(2)	Eccentric Total Lift — Inches
5.0-7.0	.23L (1 pint) in 20 seconds	.290-.310

- (1) On the engine with temperatures normalized and at normal curb idle speed, in neutral.
- (2) The inside diameter of the smallest passage in the test flow circuit must not be less than .220.

Torque Specifications

NOTE: All values are in N·m (ft·lb) unless otherwise noted. Oil threads with engine oil unless the threads require oil or water-resistant sealer. The standard torque limits listed below are applicable for all functions not listed in the special torque chart.

General Torque Specifications

1/4-20	5/16-18	5/16-24	3/8-16	3/8-24	7/16-14	7/16-20	1/2-13	9/16-18
8-12 (6-9)	17-24 (12-18)	19-27 (14-20)	30-43 (22-32)	37-51 (27-38)	61-77 (45-57)	55-81 (40-60)	75-81 (55-60)	116-162 (85-120)

Pipe Threads

1/8-27	1/4-18	3/8-18	1/2-14
7-11 (5-8)	17-24 (12-18)	30-44 (22-33)	34-47 (25-35)

TORQUE SPECIFICATIONS — CONT'D

Specific Applications

Item	Torque	
	N-m	(ft-lb)
Connecting Rod Nut	55-61	40-45
Cylinder Front Cover	17-24	12-18
Cylinder Head Bolts	(1)	(1)
Damper to Crankshaft	177-203	130-150
EGR Valve to Carburetor Spacer or Intake Manifold	17-24	12-18
Flywheel to Crankshaft	102-115	75-85
Main Bearing Cap Bolts	82-94	60-70
Manifold to Cylinder Head — Intake (2)	30-43	22-32
Manifold to Cylinder Head — Exhaust (2)	30-43	22-32
Oil Filter Insert to Cylinder Block/Adaptor	20-48	15-35
Oil Filter Adaptor to Cylinder Block	55-67	40-50
Oil Filter to Adaptor or Cylinder Block	1/2 turn after gasket contacts sealing surface — oiled gasket	
Oil Inlet Tube to Pump	14-20	10-15
Oil Pan Drain Plug	21-33	15-25
Oil Pan to Cylinder Block (2)	14-17	10-12
Oil Pump to Cylinder Block	14-20	10-12
Oil Inlet Tube to Main Bearing Cap	30-43	22-32
Pulley to Damper Bolt	48-67	35-50
Rocker Arm Bolt	24-31	17-23
Spark Plug to Cylinder Head	14-20	10-15
Valve Rocker Arm Cover	5-9	4-7
Valve Push Rod — Cover to Cylinder Block	1.7-2.25	(15-20 in-lb)
Water Outlet Housing	17-24	12-18
Water Pump to Block/Front Cover	17-24	12-18
Alternator Bracket to Cylinder Block — Bolt	41-61	30-45

(1) Progressively increase the tightness in three steps using this sequence:

1st step — Tighten all bolts to 67-75 N-m (50-55 ft-lb).

2nd step — Tighten all bolts to 82-88 N-m (60-65 ft-lb).

3rd step — Tighten all bolts to 94-115 N-m (70-85 ft-lb).

(2) Follow bolt tightening sequence mentioned above.

Powertrain — Gasoline Engines — 4.9L I-6

TORQUE SPECIFICATIONS — CONT'D

Specific Applications — Cont'd

Item	Torque	
	N·m	(ft·lb)
Alternator Adjusting Arm to Cylinder Block Bolt	26-36	19-27
Alternator Adjusting Arm to Alternator Bolt	33-54	24-40
Thermactor Pump Pivot Bolt	41-48	30-35
Thermactor Pump Adjusting Arm to Pump	30-43	22-32
Thermactor Pump Pulley to Pump Hub	17-24	(150-220 in·lb)
Thermactor Pump Bracket to Cylinder Block	30-43	22-32
Fuel Filter to Carburetor/Pump	10-11	(80-100 in·lb)
Carburetor Attaching Nuts	17-20	12-15
Camshaft Thrust Plate to Cylinder Block	16-24	12-18
Fuel Pump to Cylinder Block/Front Cover	17-24	12-18
Carburetor Mounting Stud	7-13	5-10
Distributor Clampdown	24-33	17-25
Intake Manifold Vacuum Fittings	8-13	6-10
Timing Pointer to Front Cover	17-24	12-18
Thermactor Air Manifold to Cylinder Head (Nut and Ferrule Assy.)	19-22	14-16
Thermactor Air Check Valve to Thermactor Air Manifold	22-26	16-19
Pressure Plate and Cover Assy. to Flywheel	16-25	12-18
Fuel Line Nuts	20-25	15-18

TORQUE SPECIFICATIONS — CONT'D

Ignition System

Item	Torque	
	N·m	As Noted
Distributor Holddown Bolt	23-34	17-25 ft-lb
Distributor Adapter to Distributor Base	2-2.5	18-23 in-lb
Stator Assy. Lower Plate Assy. to Distributor Base	1.7 min.	15 in-lb (min.)
Diaphragm Assembly to Distributor Base	1.7 min.	15 in-lb (min.)
Spark Plug to Cylinder Head 3.8L	20-30	15-22 ft-lb
4.9L	20-27	15-20 ft-lb
5.0L, 5.8L, 7.5L	9-20	7-15 ft-lb

Carter YFA 1-V Carburetor

Components	N·m	in-lb
Air Horn to Main Body Screws	3.06-4.18	27-37
Main Body to Throttle Body Screws	5.65-6.23	50-55
Accelerator Pump Housing Screws	.68-1.24	6-11
Choke Pulldown Diaphragm Housing Screws	3.62-4.1	32-36
Feedback or Altitude Solenoid Screws	5.1-5.65	45-50
Fast Idle Cam Retaining Screw	5.65-6.23	50-55
Choke Plate to Choke Shaft Screws	1.02-1.25	9-11
Throttle Plate to Throttle Shaft Screws	.45-.57	4-5
Main Metering Jet	2.26-2.5	20-22
Choke Cap Retaining Screws	1.92-2.26	17-20
Carburetor to Intake Manifold	17.7-19	(13-14 ft-lb)
Throttle Position Sensor	1.3-1.8	11-16
Idle Speed Control to Bracket	3.7-4.5	32-40
Idle Speed Assembly	6.8-7.9	60-70

Powertrain — Gasoline Engines — 5.0L/5.8L V-8

AVAILABILITY/POWER RATINGS — 5.0L

Availability(1)	49 States	High Alt.	Engine Ratings		Calif.	Engine Ratings	
			Horsepower @ RPM	Torque lb-ft @ RPM		Horsepower @ RPM	Torque lb-ft @ RPM
F-150 4x2 w/Man. Trans.	Opt.	NA	150 @ 3600	249 @ 2600	NA	—	—
F-150 4x2 w/Man. Trans.	NA	Opt.	NA	NA	NA	—	—
F-150 4x2 w/Auto. Trans.	Opt.	Opt.	145 @ 3400	248 @ 2200	Opt.	NA	NA
F-150 4x4 w/Auto. Trans.	NA	Opt.	NA	NA	NA	—	—
F-150 4x4 w/Auto. Trans.	Opt.	NA	150 @ 3600	249 @ 2600	Opt.	NA	NA
F-150 4x4 w/Man. Trans.	Opt.	Opt.	150 @ 3600	249 @ 2600	NA	—	—
F-250 4x2 w/Man. Trans.	Opt.	Opt.	150 @ 3600	249 @ 2600	NA	—	—
F-250 4x2 w/Auto. Trans.	Opt.	Opt.	145 @ 3400	248 @ 2200	Opt.	NA	NA
F-250 4x4	Opt.	Opt.	150 @ 3600	249 @ 2600	Opt.	NA	NA
Bronco.....	Opt.	Opt.	150 @ 3600	249 @ 2600	Opt.	NA	NA
E-150	Opt.	Opt.	150 @ 3600	249 @ 2600	Opt.	NA	NA
E-250 Van	Opt.	NA	150 @ 3600	249 @ 2600	Opt.	NA	NA
E-250 Van	NA	Opt.	NA	NA	NA	—	—

5.8L 2-V — Engine

Availability(1)	49 States	High Alt.	Engine Ratings		Calif.	Engine Ratings	
			Horsepower @ RPM	Torque lb-ft @ RPM		Horsepower @ RPM	Torque lb-ft @ RPM
F-150 4x2	Opt.	Opt.	150 @ 3400	282 @ 2000	Opt.	NA	NA
F-150 4x4	Opt.	Opt.	150 @ 3400	282 @ 2000	Opt.	NA	NA
F-250 4x2	Opt.	Opt.	150 @ 3400	282 @ 2000	Opt.	NA	NA
F-250 4x4	Opt.	Opt.	150 @ 3400	282 @ 2000	NA	—	—
F-250 HD 4x2	Opt.	Opt.	NA	NA	NA	—	—
F-250 HD 4x4	Std.	Std.	NA	NA	NA	—	—
F-350 4x2	Opt.(2)	Opt.(2)	NA	NA	NA	—	—
F-350 4x4	Std.	Std.	NA	NA	NA	—	—
Bronco.....	Opt.	Opt.	150 @ 3400	282 @ 2000	NA	—	—
E-150	Opt.	Opt.	150 @ 3400	282 @ 2000	Opt.	NA	NA
E-250 Van	Opt.	Opt.	150 @ 3400	282 @ 2000	NA	—	—
E-250 Club Wagon.....	Opt.	NA	157 @ 3400	287 @ 1800	NA	—	—
E-250 Club Wagon.....	NA	Opt.	NA	NA	NA	—	—
E-350	Opt.	NA	157 @ 3400	287 @ 1800	NA	—	—
E-350	NA	Opt.	NA	NA	NA	—	—

(1) 5.8L (351 CID) 4V V-8 to replace 5.8L (351 CID) 2V V-8 in automatic transmission applications under 8500 lbs. GVWR later in the year. For further application information, refer to the Engine Driveline Availability charts in this section of the Light Truck Facts Book.

AVAILABILITY/POWER RATINGS — CONT'D

5.8L 4-V — Engine

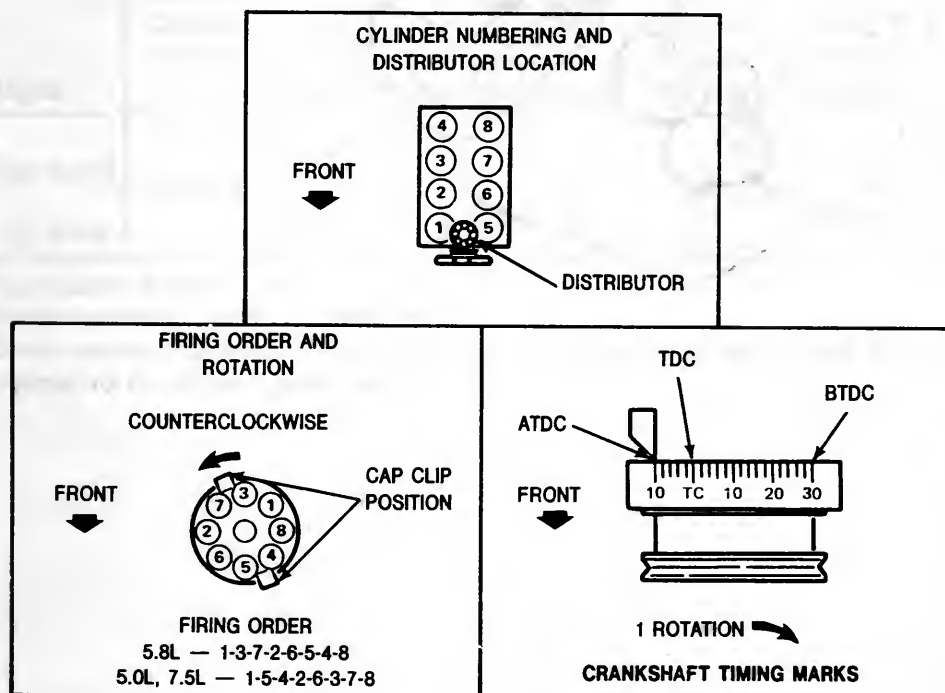
Availability(1)	49 States	High Alt.	Engine Ratings		Calif.	Engine Ratings	
			Horsepower @ RPM	Torque lb-ft @ RPM		Horsepower @ RPM	Torque lb-ft @ RPM
F-150 4x2.....	Opt.	Opt.	210 @ 4000	304 @ 2800	Opt.	NA	NA
F-250 4x2 Under 8500 lbs. GVWR.....	Opt.	Opt.	210 @ 4000	304 @ 2800	NA	—	—
F-150 4x4.....	Opt.	Opt.	210 @ 4000	304 @ 2800	Opt.	NA	NA
F-250 4x4 Under 8500 lbs. GVWR.....	Opt.	Opt.	210 @ 4000	304 @ 2800	NA	—	—
E-150.....	Opt.	Opt.	210 @ 4000	304 @ 2800	Opt.	NA	NA
E-250.....	Opt.	Opt.	210 @ 4000	304 @ 2800	NA	—	—
Bronco.....	Opt.	Opt.	210 @ 4000	304 @ 2800	Opt.	NA	NA

(1) 5.8L (351 CID) 4V V-8 to replace 5.8L (351 CID) 2V V-8 in automatic transmission applications under 8500 lbs. GVWR later in the year. For further application information, refer to the Engine Driveline Availability charts in this section of the Light Truck Facts Book.

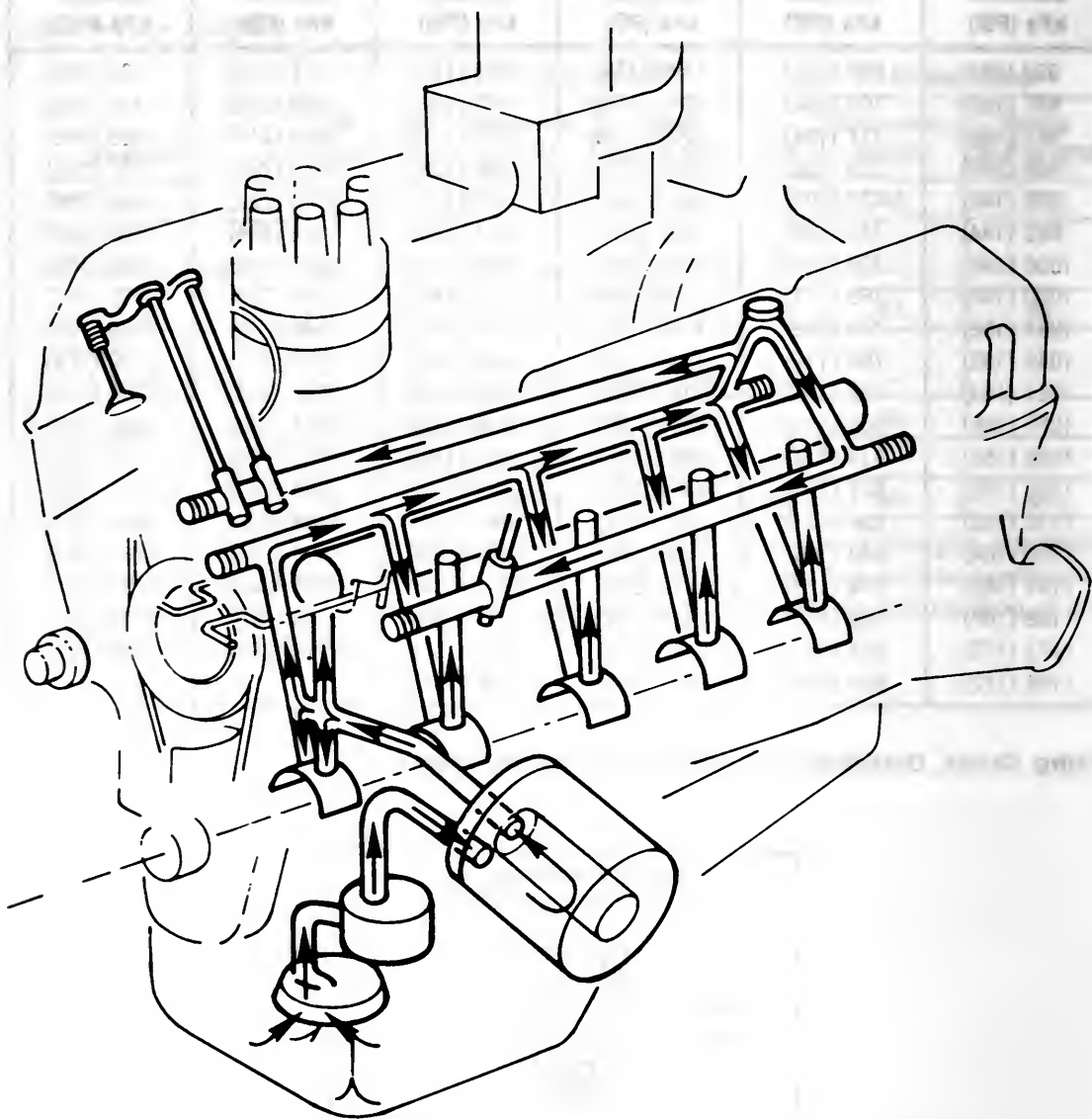
COMPRESSION TEST PERCENTAGES

Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)
923 (134)	697 (101)	1199 (174)	903 (131)	1475 (214)	1103 (160)
937 (136)	703 (102)	1213 (176)	910 (132)	1489 (216)	1116 (162)
951 (138)	717 (104)	1227 (178)	917 (133)	1503 (218)	1123 (163)
965 (140)	723 (105)	1241 (180)	930 (135)	1516 (220)	1137 (165)
979 (142)	737 (107)	1254 (182)	937 (136)	1530 (222)	1144 (166)
992 (144)	744 (108)	1268 (184)	951 (138)	1544 (224)	1158 (168)
1006 (146)	758 (110)	1282 (186)	965 (140)	1558 (226)	1165 (169)
1020 (148)	765 (111)	1296 (188)	972 (141)	1572 (228)	1179 (171)
1034 (150)	779 (113)	1310 (190)	979 (142)	1585 (230)	1185 (172)
1048 (152)	786 (114)	1323 (192)	992 (144)	1599 (232)	1199 (174)
1061 (154)	792 (115)	1337 (194)	999 (145)	1613 (234)	1206 (175)
1075 (156)	806 (117)	1351 (196)	1013 (147)	1627 (236)	1220 (177)
1089 (158)	813 (118)	1365 (198)	1020 (148)	1641 (238)	1227 (178)
1103 (160)	827 (120)	1379 (200)	1034 (150)	1654 (240)	1241 (180)
1116 (162)	834 (121)	1392 (202)	1041 (151)	1668 (242)	1247 (181)
1130 (164)	848 (123)	1406 (204)	1054 (153)	1682 (244)	1261 (183)
1144 (166)	854 (124)	1420 (206)	1061 (154)	1696 (246)	1268 (184)
1158 (168)	868 (126)	1434 (208)	1075 (156)	1709 (248)	1282 (186)
1172 (170)	875 (127)	1447 (210)	1082 (157)	1723 (250)	1289 (187)
1185 (172)	889 (129)	1461 (212)	1089 (158)		

Firing Order, Distributor Location and Timing Marks



OIL FLOW



SERVICE SPECIFICATIONS

General Specifications

Engine	Bore and Stroke	Firing Order	Oil Pressure Hot @ 2000 RPM		Engine Type and Number of Cylinders	Belt Tension — (lbs) (1)
			kPa	(PSI)		
5.0L (302 CID) V-8 2-V and EFI	4.00 x 3.00	15426378	275-413	(40-60)	O.H.V. V-8	—
5.8L (351 CID) W-V-8	4.00 x 3.50	13726548	275-448	(40-65)	O.H.V. V-8	—

Belt Size	Newly Installed (a)		Used Over 10 Min.	
	Kg	(lbs)	Kg	(lbs)
All except 1/4"	54.43-72.57	(120-160)	34.02-54.43	(75-120 (d))
1/4" Only	22.68-36.28	(50-80)	18.14-27.21	(40-60 (c))

(a) Tension measured immediately after belt is installed and before it is stretched or seats in pulley grooves.

(b) If less than 40.82 Kg (90 lbs.) readjust to 40.82-54.43 Kg (90-120 lbs.)

(c) If less than 18.14 Kg (40 lbs.) readjust to 18.14-27.21 Kg (40-60 lbs.)

(d) If less than 34.02 Kg (75 lbs.) readjust to 40.82-54.43 Kg (90-120 lbs.)

Cylinder Head

Engine	Combustion Chamber Volume C.C. (3)	Valve Guide Bore Diameter		Valve Seat Width (1)		Valve Seat Runout TIR Maximum	Valve Arrangement Front to Rear	Gasket Surface Flatness (2)
		Intake	Exhaust	Intake	Exhaust			
5.0L (302 CID) V-8 2V	67.5-70.5	.3433-	.3433-	.060-	.060-	.002	RT I-E-I-E-I-E-I-E	.003 in any 6 in.
5.8L (351 CID) W-V-8		.3443	.3443	.080	.080		LT E-I-E-I-E-I-E-I	.006 overall

(1) Valve seat angle — 45°

(2) Gasket surface finish — RMS 60-150.

(3) Compression pressure (PSI) of the lowest cylinder must be at least 75-1/2 of the highest to be within specification.

SERVICE SPECIFICATIONS — CONT'D

Valve Rocker Arm Shaft, Push Rods and Tappets

Engine	Rocker Arm Lift Ratio to 1	Push Rod Runout TIR Maximum	Valve Tappet or Lifter			Collapsed Tapped Gap (Clearance)	
			Standard Diameter	Clearance to Bore (1)	Hydraulic Lifter Leakdown Rate (2)	Allowable	Desired
5.0L 2-V and EFI (302 CID) V-8	1.61	.015	.8740-.8745	.0007-.0027	10 to 50 seconds for 1/16 travel	.071-.193	.096-.165
5.8L (351 CID) W-V-8	1.61	.015	.8740-.8745	.0007-.0027	10 to 50 seconds for 1/16 travel	.098-.198	.123-.173

(1) Service limit .005.

(2) Time required for plunger to leakdown .0625 in. under load of 50 lbs. using leakdown fluid in tappet.

Valve Springs

Engine	Valve Spring Compression Pressure (lbs) @ Specified Height		Valve Spring Free Length (Approximate)		Valve Spring Assembled Height		Valve Spring Out of Square
	Intake (1)	Exhaust	Intake	Exhaust	Intake	Exhaust	Maximum
5.0L (302 CID) V-8 2-V and EFI	74-82 @ 1.78 196-212 @ 1.36	76-84 @ 1.60 190-210 @ 1.20	2.04	1.85	1-43/64 1-45/64	1-37/64 1-39/64	5/64 (.078)
5.8L (351 CID) W-V-8	74-82 @ 1.78 190-210 @ 1.36	76-84 @ 1.60 190-210 @ 1.20	2.04	1.85	1-49/64 1-51/64	1-37/64 1-39/64	5/64 (.078)

(1) Service limit — 10% loss pressure.

Valves

Engine	Valve Stem to Guide Clearance (1)		Valve Head Diameter (2)		Valve Face Runout Maximum
	Intake	Exhaust	Intake	Exhaust	
5.0L (302 CID) V-8 2-V and EFI	.0010-.0027	.0015-.0032	1.690-1.694 1.770-1.794	1.439-1.463 1.453-1.468	.002
5.8L (351 CID) W-V-8					

(1) Service clearance — .0055.

(2) Valve face angle — 44°.

Engine	Valve Stem Diameter					
	Standard		.015 Oversize		.030 Oversize	
	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
5.0L (302 CID) V-8 2-V and EFI	.3416-.3423	.3411-.3418	.3566-.3573	.3561-.3568	.3716-.3723	.3711-.3718
5.8L (351 CID) W-V-8						

SERVICE SPECIFICATIONS — CONT'D

Camshaft

Engine	Lobe Lift (1)		Camshaft End Play		Camshaft Journal to Bearing Clearance (2)
	Intake	Exhaust	End Play	Wear Limit	
5.0L (302 CID) V-8 2-V and EFI	.2375	.2474	.001-.007	.009	.001-.003
5.8L (351 CID) W-V-8	.2600	.2600	.001-.007	.009	.001-.003

(1) Maximum allowable lift loss — .005.

(2) Service limit — .006 maximum.

Camshaft Drive

Engine	Camshaft Journal Diameter — Standard (1)					Camshaft Bearing Inside Diameter					Camshaft Front Bearing Location (2)	Timing Chain Deflection Inches Maximum
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 1	No. 2	No. 3	No. 4	No. 5		
5.0L (302 CID) V-8 2-V and EFI	2.0805	2.0655	2.0505	2.0355	2.0205	2.0825	2.0675	2.0525	2.0375	2.0225	.005-.020	.500
5.8L (351 CID) W-V-8	2.0815	2.0665	2.0515	2.0365	2.0215	2.0835	2.0685	2.0535	2.0385	2.0235		

(1) Camshaft journal runout — .005 TIR maximum.

(2) Distance in inches that front edge of the bearing is installed below the front face of the cylinder block.

Cylinder Block

Engine	Cylinder Bore Diameter (1)	Main Bearing Bore Diameter (2)	Distributor Shaft Bearing Bore Diameter	Head Gasket Surface Flatness	Head Gasket Surface Finish	Tappet Bore Diameter
5.0L (302 CID) V-8 2-V and EFI	4.0004-4.0052	2.4412-2.4420	.4525-.4541	.003 in any 6 in. .006 overall	RMS 60-150	.8752-.8767
5.8L (351 CID) W-V-8	4.0000-4.0048	3.1922-3.1930	.5155-.5170	.003 in any 6 in. .006 overall	RMS 60-150	.8752-.8767

(1) Maximum out-of-round — .0015, Service limit — .005, Maximum taper service limit — .010, Cylinder bore surface finish — RMS 18-38, Bore tapes service limit — .010.

(2) Crankshaft to rear face of block runout. TIR maximum .005.

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel

Engine	Main Bearing Journal Diameter (1)	Main Bearing Journal Runout TIR Maximum (2)	Main Bearing Thrust Face Runout TIR Maximum	Main Bearing Journal Taper Maximum Per Inch	Thrust Bearing Journal Length	Main and Rod Bearing Journal Finish RMS Maximum	Main Bearing Thrust Face Finish RMS Maximum
5.0L (302 CID) V-8 2-V and EFI	2.2482-2.2490	.002	.001	.0005	1.137-1.139	12	25 Front — 20 Rear
5.8L (351 CID) W-V-8	2.9994-3.0002	.002	.001	.0005	1.137-1.139	12	25 Front — 20 Rear

(1) Maximum out-of-round — .0006.

(2) Service limit — .005.

Engine Assembled	Connecting Rod Journal Diameter (1)	Connecting Rod Journal Taper Per Inch Maximum	Crankshaft Free End Play (2)	Flywheel Clutch Face Run-Out
5.0L (302 CID) V-8 2-V and EFI	2.1228-2.1236	.0006	.004-.008	0.010
5.8L (351 CID) W-V-8	2.3103-2.3111	.0006	.004-.008	0.010

(1) Maximum out-of-round — .0006.

(2) Service limit — .012.

SERVICE SPECIFICATIONS — CONT'D

Crankshaft Bearings

Engine	Connecting Rod Bearing to Crankshaft Clearance Selective Fit			Main Bearing to Crankshaft Clearance Selective Fit		
	Desired	Allowable	Bearing Wall Thickness Std. (1)	Desired	Allowable	Bearing Wall Thickness Std. (1)
5.0L (302 CID) V-8 2-V and EFI	.0008-.0015	.0007-.0024	.0572-.0577	(2)	(3)	(4)
5.8L (351 CID) W-V-8	.0008-.0015	.0008-.0025	.0572-.0577	.0008-.0015	.0008-.0026	.0957-.0960

(1) For .002 undersize add .001 to standard wall thickness.

(2) #1 Bearing — .0001-.0015. All others — .0005-.0015.

(3) #1 Bearing — .0001-.0020. All others — .0005-.0024.

(4) #1 Upper only .0961 — .0966. All others .0957-.0962.

Connecting Rod

Engine	Piston Pin Bore or Bushing I.D.	Rod Bearing Bore I.D. (1)	Rod Length Center to Center	Connecting Rod Alignment Maximum Total Difference		Rod to Crankshaft Assembled Side Clearance (3)
				Twist (2)	Bend (2)	
5.0L (302 CID) V-8 2-V and EFI	.9096-.9112	2.2390-2.2398	5.0885-5.0915	.024	.012	.010-.020
5.8L (351 CID) W-V-8	.9096-.9112	2.4265-2.4273	5.9545-5.9575	.024	.012	.010-.020

(1) Connecting rod bearing bore maximum out-of-round — .0004.

(2) Pin bushing and crankshaft bore must be parallel and in same vertical plane within specified total difference when measured at the ends of an 8-inch long bar, 4 inches on each side of rod centerline.

(3) Service limit — .023.

Piston

Engine	Diameter (1)			Piston to Bore Clearance Selective Fit	Piston Pin Bore Diameter	Ring Groove Width Compression		
	Coded Red	Coded Blue	.003 Oversize			Top	Bottom	Oil
5.0L (302 CID) V-8 2-V and EFI	3.9984-3.9990	3.996-4.000	4.0008-4.0014	.0018-.0026	.9123-.9126	.080-.081	.080-.081	.188-.189
5.8L (351 CID) W-V-8	3.9978-3.9984	3.9990-3.9996	4.0002-4.0008	.0018-.0026	.9124-.9127	.080-.081	.080-.081	.188-.189

(1) Measured at the piston pin bore centerline at 90° to the pin.

SERVICE SPECIFICATIONS — CONT'D

Piston Pin

Engine	Length	Diameter			To Piston Pin Bore Clearance (1)	To Connecting Rod Bushing Clearance
		Standard	.001 Oversize	.002 Oversize		
5.0L (302 CID) V-8 2-V and EFI	3.010-3.040	.9119-.9124	.9130-.9133	.9140-.9143	.0002-.0004	Interference Fit
5.8L (351 CID) W-V-8	3.010-3.040	.9119-.9124	.9130-.9133	.9140-.9143	.0003-.0005	Interference Fit

(1) Selective fit.

Piston Rings

Engine	Ring Width		Side Clearance (1)			Ring Gap		
	Top Compression	Bottom Compression	Top Compression	Bottom Compression	Oil	Top Compression	Bottom Compression	Oil (2)
5.0L (302 CID) V-8 2-V and EFI	.0770-.0780	.0770-.0780		.002-.004	Snug	.010-.020	.010-.020	.015-.055
5.8L (351 CID) W-V-8								

(1) Service limit — .002 maximum increase in clearance.

(2) Steel rail.

Oil Pump and Oil Capacity

Engine	Relief Valve Spring Pressure Lbs. @ Specified Length	Driveshaft to Housing Clearance	Relief Valve to Housing Clearance	Rotor Assembly End Clearance	Outer Race to Housing Clearance	Engine Oil Capacity (1)		
						U.S. Quarts	Imperial Quarts	Litres
5.0L (302 CID) V-8 2-V and EFI	10.6-12.2 @ 1.74	.0015-.0030	.0015-.0030	.004 Maximum	.001-.013	5	4.2	4.7
5.8L (351 CID) V-8	18.2-20.2 @ 2.49	.0015-.0030	.0015-.0030	.004 Maximum	.001-.003	5	4.2	4.7

(1) Add 1 U.S. quart (or equivalent in imperial quarts or litres) when replacing filter.

Fuel Pump — Mechanical

Engine	Static Pressure (PSI) (1)	Volume Flow — Minimum (1)(2)	Eccentric Total Lift — Inches
5.0L (302 CID) V-8/2-V 5.8L (351 CID) W-V-8	6.0-8.0	1 pint in 20 seconds	.690-.710

(1) On the engine with temperatures normalized and at normal curb idle speed, in neutral.

(2) The inside diameter of the smallest passage in the test flow circuit must not be less than .220.

TORQUE SPECIFICATIONS**General Specifications**

NOTE: All values in N-m (ft-lbs), unless otherwise noted. Oil threads with engine oil unless the threads require oil or water-resistant sealer. The standard torque limits listed below are applicable for all functions not listed in the special torque chart.

1/4-20	5/16-18	5/16-24	3/8-16	3/8-24	7/16-14	7/16-20	1/2-13	9/16-18
8-12 (6-9)	17-24 (12-18)	19-27 (14-20)	30-43 (22-32)	37-51 (27-38)	61-77 (45-57)	55-81 (40-60)	75-81 (55-60)	116-162 (85-120)

Pipe Threads

1/8-27	1/4-18	3/8-18	1/2-14
7-11 (5-8)	17-24 (12-18)	30-44 (22-33)	34-47 (25-35)

Specific Applications

Item	Torque	
	N-m	(Ft-Lb)
Camshaft Sprocket — Gear to Camshaft	55-61	(40-45)
Camshaft Thrust Plate to Cylinder Block	13-16	(9-12)
Connecting Rod Nut — 5.0L (302 CID) V-8, 2-V and EFI — 5.8L (351 CID W-V-8)	26-32 55-61	(19-24) (40-45)
Cylinder Front Cover	17-24	(12-18)
Cylinder Head Bolts	(1)(2)	
Damper to Crankshaft	95-122	(70-90)
EGR Valve to Carburetor Spacer or Intake Manifold	17-24	(12-18)
Fuel Pump to Cylinder Block or Front Cover	26-36	(19-27)
Flywheel to Crankshaft	102-115	(75-85)
Main Bearing Cap Bolts — 5.0L (302 CID) V-8 — 5.8L (351 CID) W-V-8	82-94 129-142	(60-70) (95-105)
Manifold to Cylinder Head — Intake	32-33	(23-25)
Manifold to Cylinder Head — Exhaust	25-32	(18-24)
Intake Manifold Vacuum Fittings — Aluminum — Cast Iron	8-13 32-37	(6-10) (23-28)
Intake Manifold Pipe Fittings — Aluminum — Cast Iron	17-24 32-37	(12-18) (23-28)
Oil Inlet Tube to Main Bearing Cap	30-43	(22-32)
Thermactor Pump Bracket to Cylinder Block	44-67	(30-45)

TORQUE SPECIFICATIONS — CONT'D**Specific Applications — Cont'd**

Item	Torque	
	N-m	(Ft-Lb)
Carburetor Mounting Stud	7-13	(5-10)
Distributor Clamp Down	24-32	(17-25)
Oil Filter Insert to Cylinder Block/Adaptor	28-40	(20-30)
Oil Filter to Adaptor or Cylinder Block	1/2 turn after gasket contacts sealing surface — oiled gasket	
Oil Inlet Tube Pump	14-20	(10-15)
Oil Pan Drain Plug	21-33	(15-25)
Oil Pan to Cylinder Block	13-14	(9-11)
Oil Pump to Cylinder Block	30-43	(22-32)
Pulley to Damper Bolt	48-67	(35-50)
Rocker Arm Stud/Bolt to Cylinder Head	25-33	(18-25)
Spark Plug to Cylinder Head	14-20	(10-15)

TORQUE SPECIFICATIONS — CONT'D

Item	Torque	
	N-m	Ft-Lb
Valve Rocker Arm Cover	4-6	(3-5)
Water Outlet Housing	13-16	(9-12)
Water Pump to Block/Front Cover	17-24	(12-18)
Alternator Bracket to Cylinder Block — Bolt	17-24	(12-18)
Alternator Adjusting Arm to Alternator Bolt	33-60	(24-40)
Thermactor Pump Pivot Bolt	30-43	(22-32)
Thermactor Pump Adjusting Arm to Pump	30-43	(22-32)
Thermactor Pump Pulley to Pump Hub	17-24	(150-220 in-lb)
Fuel Filter to Carburetor	10-11	(80-100 in-lb)
Carburetor Attaching Nuts	17-20	(12-15)

- (1) 5.0L (302 CID) V-8 — Torque in steps: first to 75-88 N-m (55-65 ft-lb) then to 88-97 N-m (65-72 ft-lb)
- (2) 5.8L (351 CID) W-V-8 — Torque in steps: first to 115 N-m (85 ft-lb) then to 129 N-m (95 ft-lb), final to 143-151 N-m (105-112 ft-lb)

Ignition System

Item	Torque	
	N-m	As Noted
Distributor Holddown Bolt	23-34	17-25 ft-lb
Distributor Adapter to Distributor Base	2-2.5	18-23 in-lb
Stator Assy. Lower Plate Assy. to Distributor Base	1.7 min.	15 in-lb (min.)
Diaphragm Assembly to Distributor Base	1.7 min.	15 in-lb (min.)
Spark Plug to Cylinder Head 2.8L	7-20	10-15 ft-lb
4.9L	20-27	15-20 ft-lb
5.0L, 5.8L, 7.5L	9-20	7-15 ft-lb

TORQUE SPECIFICATIONS — CONT'D**Holley 4180-C 4V Carburetor**

Item	N-m	In-Lb
Carburetor to Manifold Nuts	19-27	14-20 (ft-lb)
Accelerator Pump Nozzle to Main Body Retaining Screw	3-4.8	27-43
Secondary Diaphragm Cover Attaching Screws	1.5-1.9	13-17
Secondary Diaphragm Housing Retaining Screws	2.3-3.5	20-31
Choke Plate Screws	.7-.9	6-8
Choke Thermostat Nut	1.8-2.3	16-20
Choke Housing Screws	2.3-3.4	20-30
Choke Thermostatic Housing Screws	1.8-2.0	16-18
Throttle Body to Main Body Attaching Screws	4.4-5.9	39-52
Accelerator Pump Diaphragm Cover Screws	1.1-1.6	10-14
Fuel Inlet Fitting	30-35	22-26 (lb-ft)
Fuel Level Sight Plug	2.2-2.7	19-24
Power Valve	12.2-16.3	9-12 (lb-ft)
Jets to Metering Block	2.0-2.5	18-20
Fuel Bowl Retaining Screws	5.7-6.8	50-60

TORQUE SPECIFICATIONS — CONT'D**Model 2150 2V Carburetor**

Torque Specifications	N·m	in-lb
Air Horn to Main Body	3.06-4.18	27-37
Fuel Inlet Valve Seat	5.08	45
Accelerator Pump Diaphragm Cover	1.47-2.25	13-20
Choke Pulldown Diaphragm	2.26-3.38	20-30
Aneroid Assembly to Main Body	2.26-3.38	20-30
Fast Idle Lever Retaining Nut	2.26-3.16	20-28
Enrichment Valve	12-13	100-120
Enrichment Valve Cover	1.47-2.25	13-20
Accelerator Pump Discharge Screw	7.35-9.60	65-85
Main Jets	3.16	28
Choke Housing Retaining Screw	1.47-2.25	13-20
Choke Plate Screws	.46-1.01	4-9
Carburetor Body Flange to Intake Manifold	20-21	14-16 (ft-lb)
Air Cleaner Anchor Screw	7-9	5-7 (ft-lb)
Air Cleaner Wing Nut (Steel)	1.70-2.82	15-25
Air Cleaner Wing Nut (Plastic)	2.83-3.95	25-35
Temperature Compensated Pump Valve Cover	2.14-2.71	19-24
Integral Attitude Compensator	2.26-3.39	20-30
Feedback Duty Cycle Solenoid	2.26-3.39	20-30
Throttle Position Sensor	1.24-1.81	11-16
Feedback Booster Venturi Screw	7.34-9.6	65-85
Temperature Compensated Pump	2.14-2.71	19-24

AVAILABILITY/POWER RATINGS

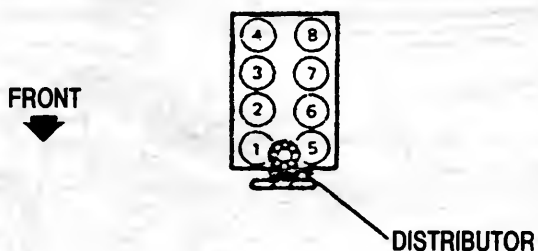
Availability	49 States	High Alt.	Engine Ratings		Calif.	Engine Ratings	
			Horsepower @ RPM	Torque lb-ft @ RPM		Horsepower @ RPM	Torque lb-ft @ RPM
F-250 HD 4x2 Over 8500 lbs. GVWR.....	Opt.	Opt.	226 @ 4400	365 @ 2800	Opt.	221 @ 4200	361 @ 2600
F-350 4x2.....	Opt.	Opt.	226 @ 4400	365 @ 2800	Opt.	221 @ 4200	361 @ 2600
F-250 HD 4x4 Over 8500 lbs. GVWR.....	Opt.	Opt.	226 @ 4400	365 @ 2800	Opt.	221 @ 4200	361 @ 2600
F-350 4x4.....	Opt.	Opt.	226 @ 4400	365 @ 2800	Opt.	221 @ 4200	361 @ 2600
E-250 Club Wagon, Super Wagon.....	Opt.	Opt.	226 @ 4400	365 @ 2800	Opt.	221 @ 4200	361 @ 2600
E-350	Opt.	Opt.	226 @ 4400	365 @ 2800	Opt.	221 @ 4200	361 @ 2600

Compression Test Percentages

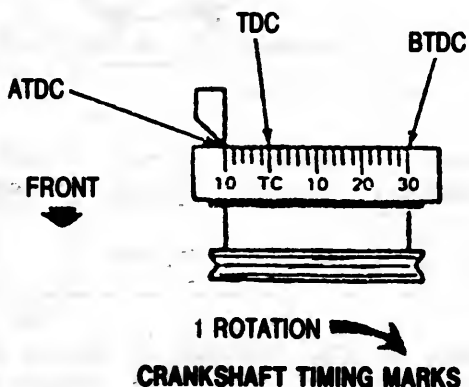
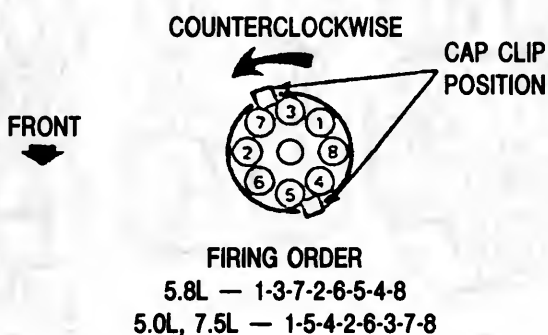
Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)	Maximum kPa (PSI)	Minimum kPa (PSI)
923 (134)	697 (101)	1199 (174)	903 (131)	1475 (214)	1103 (160)
937 (136)	703 (102)	1213 (176)	910 (132)	1489 (216)	1116 (162)
951 (138)	717 (104)	1227 (178)	917 (133)	1503 (218)	1123 (163)
965 (140)	723 (105)	1241 (180)	930 (135)	1516 (220)	1137 (165)
979 (142)	737 (107)	1254 (182)	937 (136)	1530 (222)	1144 (166)
992 (144)	744 (108)	1268 (184)	951 (138)	1544 (224)	1158 (168)
1006 (146)	758 (110)	1282 (186)	965 (140)	1558 (226)	1165 (169)
1020 (148)	765 (111)	1296 (188)	972 (141)	1572 (228)	1179 (171)
1034 (150)	779 (113)	1310 (190)	979 (142)	1585 (230)	1185 (172)
1048 (152)	786 (114)	1323 (192)	992 (144)	1599 (232)	1199 (174)
1061 (154)	792 (115)	1337 (194)	999 (145)	1613 (234)	1206 (175)
1075 (156)	806 (117)	1351 (196)	1013 (147)	1627 (236)	1220 (177)
1089 (158)	813 (118)	1365 (198)	1020 (148)	1641 (238)	1227 (178)
1103 (160)	827 (120)	1379 (200)	1034 (150)	1654 (240)	1241 (180)
1116 (162)	834 (121)	1392 (202)	1041 (151)	1668 (242)	1247 (181)
1130 (164)	848 (123)	1406 (204)	1054 (153)	1682 (244)	1261 (183)
1144 (166)	854 (124)	1420 (206)	1061 (154)	1696 (246)	1268 (184)
1158 (168)	868 (126)	1434 (208)	1075 (156)	1709 (248)	1282 (186)
1172 (170)	875 (127)	1447 (210)	1082 (157)	1723 (250)	1289 (187)
1185 (172)	889 (129)	1461 (212)	1089 (158)		

FIRING ORDER, DISTRIBUTOR LOCATION AND TIMING MARKS

CYLINDER NUMBERING AND DISTRIBUTOR LOCATION

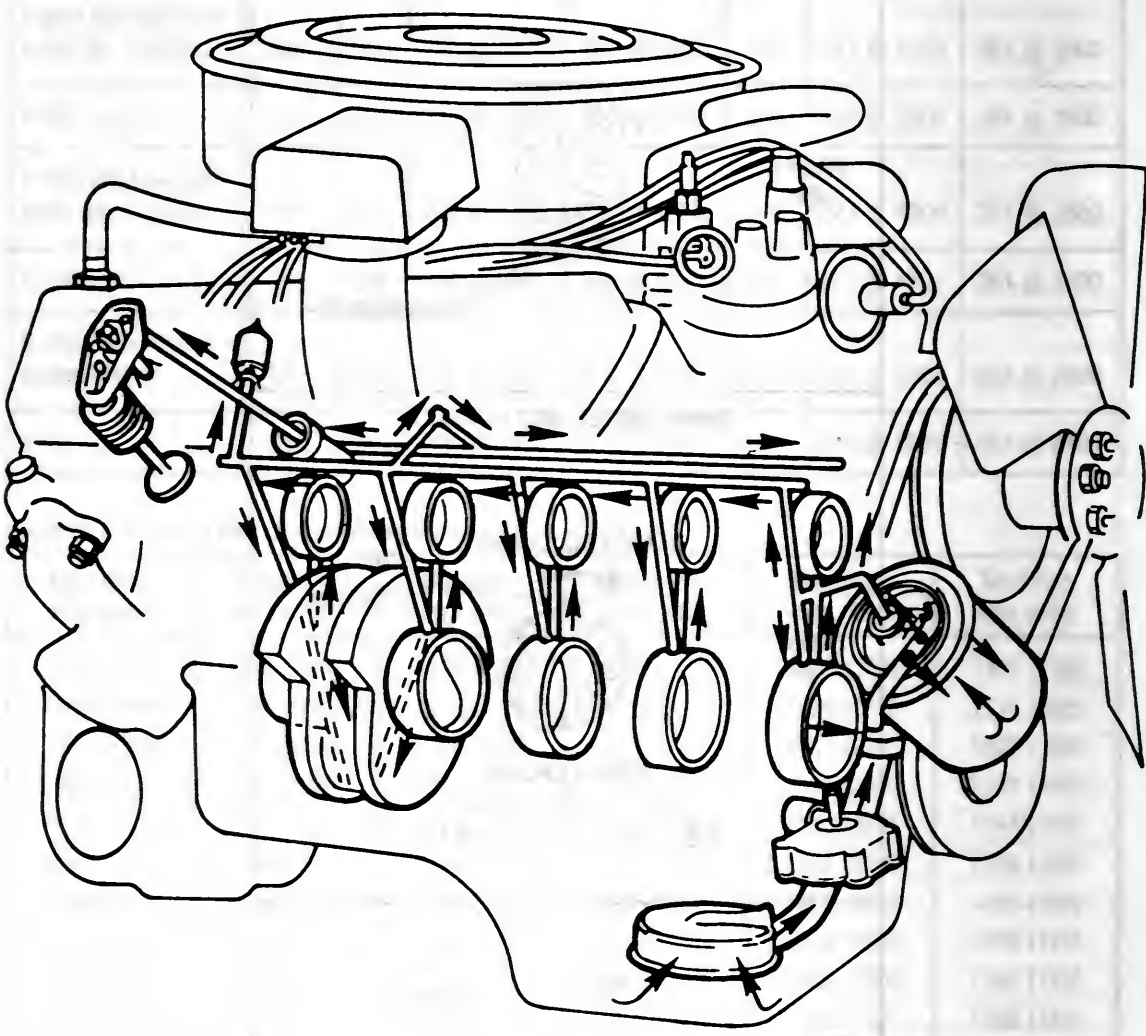


FIRING ORDER AND ROTATION



5.0L, 5.8L, 7.5L

OIL FLOW



SERVICE SPECIFICATIONS

General Specifications

Bore and Stroke	Firing Order	Oil Pressure Hot @ 2000 RPM kPa (PSI)	Engine Type and Number of Cylinder
4.36 x 3.85	15426378	276-448 (40-65)	O.H.V. V-8

Belt Tension

Belt Size	Newly Installed(a)		Used Over 10 Min.	
	Kg	(lb)	Kg	(lb)
All except 1/4"	55-72	120-160	34-54	75-120(b)
1/4" Only	23-36	50-80	18-27	40-60(c)

(a) Tension measured immediately after belt is installed and before it is stretched or seats in pulley grooves (all belts).

(b) If less than 34 Kg (75 lb), readjust to 41-54 Kg (90-120 lb).

(c) If less than 18 Kg (40 lb), readjust to 18-27 Kg (40-60 lb).

Cylinder Head

Combustion Chamber Volume C.C(3)	Valve Guide Bore Diameter		Valve Seat Width(1)		Valve Seat Runout TIR Maximum	Valve Arrangement Front to Rear	Gasket Surface Flatness (2)
	Intake	Exhaust	Intake	Exhaust			
94.7-97.7	.3433-.3443	.3433-.3443	.060-.080	.060-.080	.002	RT I-E-I-E-I-E-I-E LT E-I-E-I-E-I-E-I	.003 in any 6 in. .006 overall

(1) Valve seat angle — 45°

(2) Gasket surface finish — RMS 60-150.

(3) Compression pressure (PSI) of the lowest cylinder must be at least 75% of the highest to be within specification.

Valve Rocker Arm Shaft, Push Rods and Tappets

Rocker Arm Lift Ratio to 1	Push Rod Runout TIR Maximum	Valve Tappet or Lifter			Collapsed Tappet Gap (Clearance)	
		Standard Diameter	Clearance to Bore(1)	Hydraulic Lifter Leakdown Rate(2)	Allowable	Desired
1.73	.015	.8740-.8745	.0007-.0027	10 to 50 seconds for 1/16 travel	.075-.175	.100-.150

(1) Service limit — .005

(2) Time required for plunger to leakdown .0625 in. under load of 50 lbs. using leakdown fluid in tappet.

SERVICE SPECIFICATIONS — CONT'D

Valve Springs

Valve Spring Compression Pressure Lbs. @ Specified Height		Valve Spring Free Length (Approximate)		Valve Spring Assembled Height		Valve Spring Out of Square Maximum
Intake(1)	Exhaust	Intake	Exhaust	Intake	Exhaust	
76-84 @ 1.81 218-240 @ 1.33	76-84 @ 1.81 218-240 @ 1.33	2.06	2.06	1-51/64—1-53/64	1-51/64—1-53/64	5/64 (.078)

(1) Service limit — 10% loss of pressure.

Valves

Valve Stem to Guide Clearance(1)		Valve Head Diameter(1)		Valve Face Runout TIR Maximum
Intake	Exhaust	Intake	Exhaust	
.0010-.0027	.0010-.0027	2.075-2.090	1.646-1.661	.002

(1) Service Clearance — .0055.

(2) Valve face angle — 44°

Valves (Continued)

Engine	Standard		Valve Stem Diameter .015 Oversize		.030 Oversize	
	Intake	Exhaust	Intake	Exhaust	Intake	Exhaust
7.5L (460 CID) V-8	.3416-.3423	.3416-.3423	.3566-.3573	.3566-.3573	.3716-.3723	.3716-.3723

SERVICE SPECIFICATIONS — CONT'D

Camshaft

Lobe Life(1)		Camshaft End Play		Camshaft Journal to Bearing Clearance(2)
Intake	Exhaust	End Play	Service Limit	
.252	.278	.001-.006	.009	.001-.003

(1) Maximum allowable lift loss — .005.

(2) Service limit — .006.

Camshaft Drive

Camshaft Journal Diameter — Standard(1)					Camshaft Bearing Inside Diameter					Camshaft Front Bearing Location(2)	Timing Chain Deflection Inches Maximum
No. 1	No. 2	No. 3	No. 4	No. 5	No. 1	No. 2	No. 3	No. 4	No. 5		
2.1238-2.1248	2.1238-2.1248	2.1238-2.1248	2.1238-2.1248	2.1238-2.1248	2.1258-2.1268	2.1258-2.1268	2.1258-2.1268	2.1258-2.1268	2.1258-2.1268	.040-.060	.500

(1) Camshaft journal runout — .005 TIR maximum.

(2) Distance in inches that front edge of the bearing is installed below the front face of the cylinder block.

Cylinder Block

Cylinder Bore Diameter(1)	Main Bearing Bore Diameter	Distributor Shaft Bearing Bore Diameter	Head Gasket Surface Flatness	Head Gasket Surface Finish	Tappet Bore Diameter
4.3600-4.3636	3.1922-3.1934	.5160-.5175	.003 in any 6 in. .006 overall	RMS 90-150	.8752-.8767

(1) Maximum out-of-round — .0015, Service limit — .005, Maximum taper service limit — .010, Cylinder bore surface finish RMS 18-38, Bore taper service limit — .010

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel

Main Bearing Journal Diameter(1)	Main Bearing Journal Runout TIR Maximum(2)	Main Bearing Thrust Face Runout TIR Maximum	Main Bearing Journal Taper Maximum Per Inch	Thrust Bearing Journal Length	Main and Rod Bearing Journal Finish RMS Maximum	Main Bearing Thrust Face Finish RMS Maximum
2.9994-3.0002	.002	.001	.0005	1.124-1.126	12	25 Front — 23 Rear

(1) Maximum out-of-round — .0006.

(2) Service limit — .005.

Crankshaft and Flywheel (Cont'd)

Connecting Rod Journal Diameter(2)	Connecting Rod Journal Taper Per Inch Maximum	Crankshaft Free End Play(2)
2.4992-2.5000	.0006	.004-.008

(1) Maximum out-of-round — .0006.

(2) Service limit — .012.

Crankshaft Bearings

Connecting Rod Bearing to Crankshaft Clearance Selective Fit			Main Bearing to Crankshaft Clearance Selective Fit		
Desired	Allowable	Bearing Wall Thickness Std.(1)	Desired	Allowable	Bearing Wall Thickness Std.(1)
.0008-.0015	.0008-.0025	.0625/.0756	.0008-.0015	.0008-.0026	.0955-.0960

(1) For .002 undersize add .001 to standard wall thickness.

Connecting Rod

Piston Pin Bore or Bushing I.D.	Rod Bearing Bore I.D.(1)	Rod Length Center to Center	Connecting Rod Alignment Maximum Total Difference		Rod to Crankshaft Assembled Side Clearance(3)
			Twist(2)	Bend(2)	
1.0386-1.0393	2.6522-2.6530	6.6035-6.6065	.024	.012	.010-.020

(1) Connecting rod bearing bore maximum out-of-round — .0004.

(2) Pin bushing and crankshaft bore must be parallel and in same vertical plane within specified total difference when measured at the ends of an 8-inch long bar, 4 inches on each side of rod centerline.

(3) Service limit — .023.

Piston

Diameter(1)			Piston to Bore Clearance Selective Fit	Piston Pin Bore Diameter	Ring Groove Width Compression		
Coded Red	Coded Blue	.003 Oversize			Top	Bottom	Oil
4.3585-4.3591	4.3597-4.3603	4.3609-4.3615	.0022-.0030	1.0402-1.0405	.0805-.0815	.0805-.0815	.188-.189

(1) Measured at the piston pin bore centerline at 90° to the pin.

SERVICE SPECIFICATIONS — CONT'D

Piston Pin

Length	Diameter		To Piston Pin Bore Clearance (1)	To Connecting Rod Bushing Clearance
	Standard	.001 Oversize		
3.290-3.320	1.0398-1.0403	1.0410-1.0413	.0002-.0005	Interference Fit

(1) Selective Fit.

Piston Rings

Ring Width Compression		Side Clearance (1)			Ring Gap		
		Compression		Oil	Compression (In gauge)		Oil
Top	Bottom	Top	Bottom		Top	Bottom	
.077-.078	.0770-.0780	.0025-.0045	.0025-.0045	Snug	.010-.020	.010-.020	.010-.035

Oil Pump and Oil Capacity

Relief Valve Spring Pressure Lbs. @ Specified Length	Driveshaft to Housing Clearance	Relief Valve to Housing Clearance	Rotor Assembly End Clearance	Outer Race to Housing Clearance	Engine Oil Capacity (1)			Inner to Outer Rotor Tip Clearance
					U.S. Qts.	Imperial Qts.	Liters	
20.6-22.6 @ 2.49	.0015-.0030	.0015-.0030	.004 Maximum	.001-.013	5	4.2	4.7	.012

(1) Add 1 U.S. quart (or equivalent in Imperial quarts or litres) when replacing filter.

Fuel Pump — Mechanical

Static Pressure (PSI) (1) E-150 — E-350	Volume Flow — Minimum (1) (2)	Eccentric Total Lift — Inches
6.0-8.0	1 pint in 20 seconds	.602-.622

(1) On the engine with temperatures normalized and at normal curb idle speed, in neutral.

(2) The inside diameter of the smallest passage in the test flow circuit must not be less than .220.

TORQUE SPECIFICATIONS

General Specifications

NOTE: All values are in N-m (ft-lb) unless otherwise noted. Oil threads with engine oil unless the threads require oil or water-resistant sealer. The standard torque limits listed below are applicable for all functions not listed in the special torque chart.

1/4-20	5/16-18	5/16-24	3/8-16	3/8-24	7/16-14	7/16-20	1/2-13	9/16-18
8-12 (6-9)	17-24 (12-18)	19-27 (14-20)	30-43 (22-32)	37-51 (27-38)	61-77 (45-57)	55-81 (40-60)	75-81 (55-60)	118-182 (85-120)

Pipe Threads

1/8-27	1/4-18	3/8-18	1/2-14
7-11 (5-8)	17-24 (12-18)	30-44 (22-23)	34-47 (25-35)

TORQUE SPECIFICATIONS — CONT'D**Specific Applications**

Item	Torque	
	N-m	(Ft-Lb)
Camshaft Sprocket — Gear to Camshaft	55-61	(40-45)
Camshaft Thrust Plate to Cylinder Block	13-16	(9-12)
Connecting Rod Nut	55-61	(45-50)
Cylinder Front Cover — 5/16"	17-24	(15-21)
Cylinder Head Bolts	(1)	
Damper to Crankshaft	95-122	(70-90)
EGR Valve to Carburetor Spacer or Intake Manifold	17-24	(12-18)
Carburetor Mounting Stud	20 Max.	15 Max.
Fuel Pump to Cylinder Block or Front Cover	26-36	(19-27)
Flywheel to Crankshaft	103-115	(75-85)
Main Bearing Cap Bolts	129-142	(95-105)
Manifold to Cylinder Head — Intake	30-43	(22-32)
Intake Manifold Vacuum Fittings	8-13	(6-10)
Manifold to Cylinder Head — Exhaust	38-44	(28-33)
Oil Filter Insert to Cylinder Block/Adapter	62-74	(45-55)
Oil Filter Adapter to Cylinder Block	55-67	(40-50)
Oil Filter to Adapter or Cylinder Block	1/2 turn after gasket contacts sealing surface — oiled gasket	
Oil Inlet Tube to Pump	17-24	(12-18)
Oil Inlet Tube to Main Bearing Cap	30-43	(22-32)

(1) Torque in steps: first to 108 N-m (80 ft-lb); then to 149 N-m (110 ft-lb); final to 177-189 N-m (130-140 ft-lb).

TORQUE SPECIFICATIONS — CONT'D

Specific Applications — Cont'd

Item	Torque	
	N-m	(Ft-Lb)
Oil Pan Drain Plug	21-33	(15-25)
Oil Pan to Cylinder Block	1/4" 10-12 5/16" 13-14	(7-9) (9-11)
Oil Pump to Cylinder Block	30-43	(22-32)
Pulley to Damper Bolt	48-67	(35-50)
Rocker Arm Stud/Bolt to Cylinder Head	25-33	(18-25)
Spark Plug to Cylinder Head	7-13	(5-10)
Valve Rocker Arm Cover	7-8	(5-6)
Water Outlet Housing	14-20	(12-18)
Water Pump to Cylinder Block or Front Cover	21-28	(12-18)
Alternator Bracket to Cylinder Block — Bolt	44-61	(35-50)
Alternator Pivot Bolt	62-77	(45-57)
Alternator Adjusting Arm to Cylinder Block Bolt	48-67	(35-50)
Alternator Adjusting Arm to Alternator Bolt	33-60	(24-40)
Thermactor Pump Bracket to Cylinder Block	41-61	(35-50)
Thermactor Pump Pivot Bolt	44-76	(35-50)
Thermactor Pump Adjusting Arm to Pump	30-43	(22-32)
Thermactor Pump Pulley to Pump Hub	17-24	(150-220)
Carburetor Attaching Nuts	17-20	(12-15)
Distributor Clamp Down	24-33	(17-25)

TORQUE SPECIFICATIONS — CONT'D**Ignition System**

Item	Torque	
	N-m	As Noted
Distributor Holddown Bolt	23-34	17-25 ft-lb
Distributor Adapter to Distributor Base	2-2.5	18-23 in-lb
Stator Assy. Lower Plate Assy. to Distributor Base	1.7 min.	15 in-lb (min.)
Diaphragm Assembly to Distributor Base	1.7 min.	15 in-lb (min.)
Spark Plug to Cylinder Head 2.8L	7-20	10-15 ft-lb
4.9L	20-27	15-20 ft-lb
5.0L, 5.8L, 7.5L	9-20	7-15 ft-lb

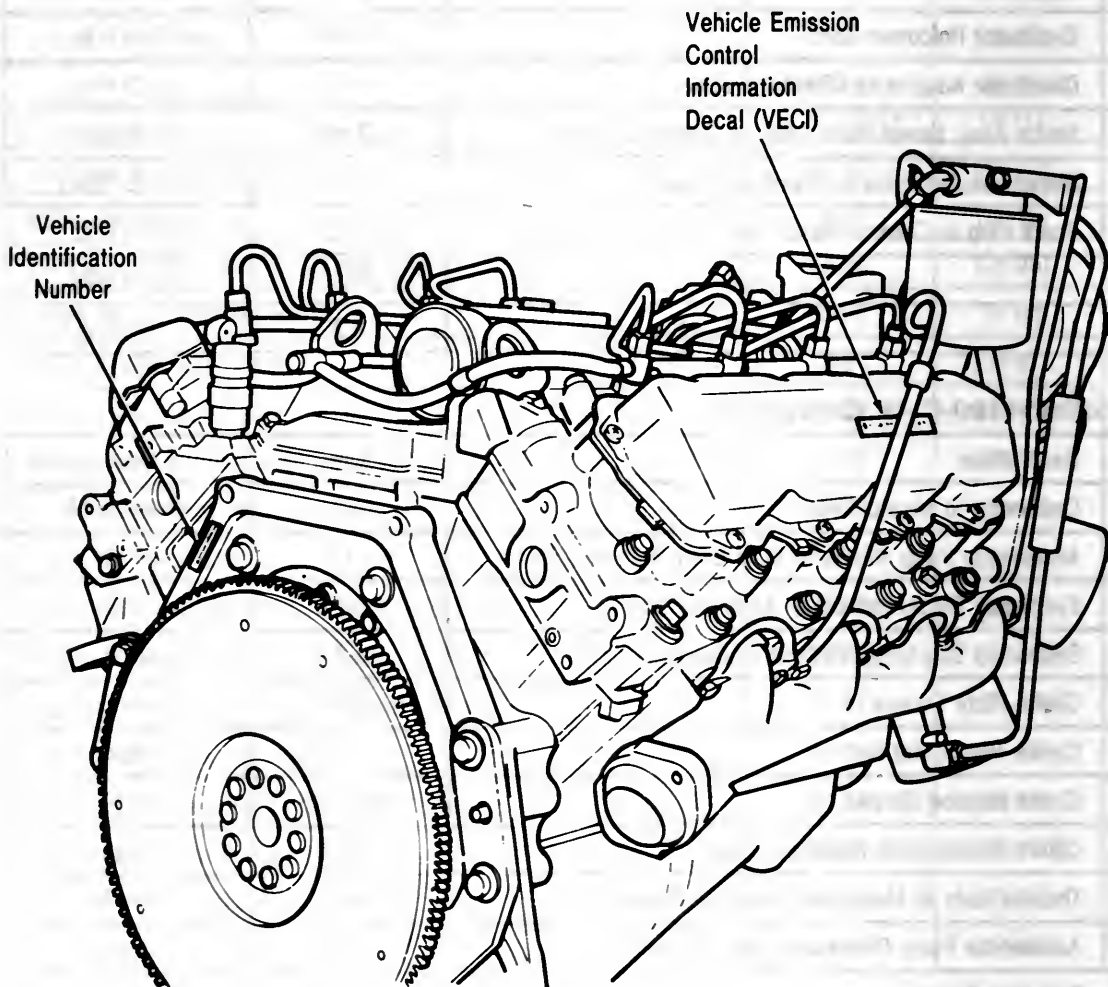
Holley 4180-C 4V Carburetor

Description	N-m	In-Lb
Carburetor to Manifold Nuts	19-27	14-20 (ft-lb)
Accelerator Pump Nozzle to Main Body Retaining Screw	3-4.8	27-43
Secondary Diaphragm Cover Attaching Screws	1.5-1.9	13-17
Secondary Diaphragm Housing Retaining Screws	2.3-3.5	20-31
Choke Plate Screws	.7-.9	6-8
Choke Thermostat Nut	1.8-2.3	16-20
Choke Housing Screws	2.3-3.4	20-30
Choke Thermostatic Housing Screws	1.8-2.0	16-18
Throttle Body to Main Body Attaching Screws	4.4-5.9	39-52
Accelerator Pump Diaphragm Cover Screws	1.1-1.6	10-14
Fuel Inlet Fitting	30-35	22-26 (lb-ft)
Fuel Level Sight Plug	2.2-2.7	19-24
Power Valve	12.2-16.3	9-12 (lb-ft)
Jets to Metering Block	2.0-2.5	18-20
Fuel Bowl Retaining Screws	5.7-6.8	50-60

IDENTIFICATION

Vehicle Emission Control Information Decal

Decal Location



ENGINE EXHAUST EMISSION CONTROL INFORMATION 6.9LD ENGINE FAMILY												
MODEL			A170									
ADV. BHP @ RPM			170 @ 3300									
FUEL RATE g ADV SHP MM 1 STROKE			54.5									
INITIAL INJECTION TIMING DEGREES BTDC			MARKS ALIGNED									
DISPLACEMENT 6.9 LITERS					IDLE RPM 650 ± 50							
SETTINGS MUST BE MADE WITH ENGINE AT NORMAL OPERATING TEMPERATURE, AIR CONDITIONING <u>OFF</u> , TRANSMISSION IN <u>NEUTRAL</u>												
'84	JUN	JUL	AUG	SEP	OCT	NOV	DEC	THIS ENGINE CONFORMS TO U.S. ENVIRONMENTAL- PROTECTION AGENCY, CANADIAN, AND CALIFORNIA REGULATIONS APPLICABLE TO 1983 MODEL YEAR HEAVY DUTY DIESEL ENGINES				
'85	JAN	FEB	MAR	APR	MAY	JUN	JUL					
EAB												

IDENTIFICATION — CONT'D

Engine Code Label

YEAR 50S 49S CANADA CALIF.

0	0	A	L	S
1	1	B	M	T
2	2	C	N	U
3	3	D	P	W
4	4	E	R	X
5	5	F	L	S
6	6	G	M	T
7	7	H	N	U
8	8	J	P	W
9	9	K	R	X

BASE
DISPLACEMENT
VEHICLE APPLICATION
INERTIA WEIGHT
AXLE RATIO
TRANSMISSION

- A — AIR CONDITIONING
- B — NON-AIR CONDITIONING
- C — INDUSTRIAL & MARINE
- D — EXPORT
- E — OVER 6000 LBS/NON-THERM
- F — THERMACTOR WITHOUT A/C
- G — A/C OR NON-A/C ENGINES
- H — POWER STEERING
- J — THERMACTOR WITH A/C
- K — THERMACTOR A/C OR NON-A/C
- L — OVER 6000 LBS/THERM

DESIGN LEVEL

A — USED TO INDICATE INITIAL RELEASE

CALIB & REVISION LEVEL

A — USED TO INDICATE
INITIAL RELEASE

3G 001 AA

A	B	C	D	E	F	G	H	J	K	L	M
1	2	3				83	84			85	
1	2	3	4	5	6	7	8	9	0		

ENGINE
BUILD
DATE

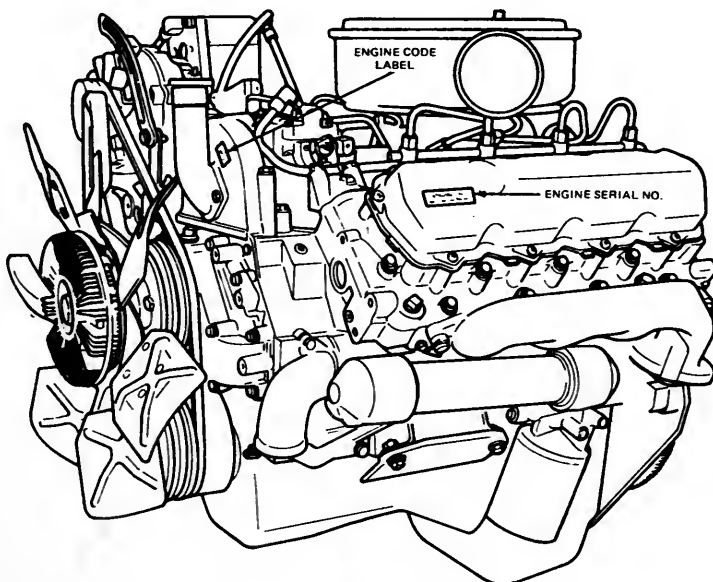
CALIBRATION
368J-R00

← REVISION
LEVEL

← CALIBRATION
NUMBER

*CALENDAR YEAR MUST BE HERE
FOR ALL 0/8500# TRUCK ENGINES

LABEL LOCATION



Compression Test Percentages

Maximum kPa (PSI)	Minimum kPa (PSI)
1792 (260)	1344 (195)
1929 (280)	1447 (210)
2067 (300)	1551 (225)
2205 (320)	1654 (240)
2343 (340)	1757 (255)
2481 (360)	1860 (270)
2619 (380)	1964 (285)
2756 (400)	2067 (300)
2894 (420)	2171 (315)
3032 (440)	2274 (330)

OPERATIONAL SPECIFICATIONS:

Idle Speeds(1)

Curb

(2) 750 RPM \pm 25 RPM

(3) 675 RPM \pm 25 RPM

Fast

875 RPM \pm 25 RPM

(1) Measure idle speeds with manual transmission in neutral, or automatic transmission in drive.

(2) Early production models.

(3) Later production models.

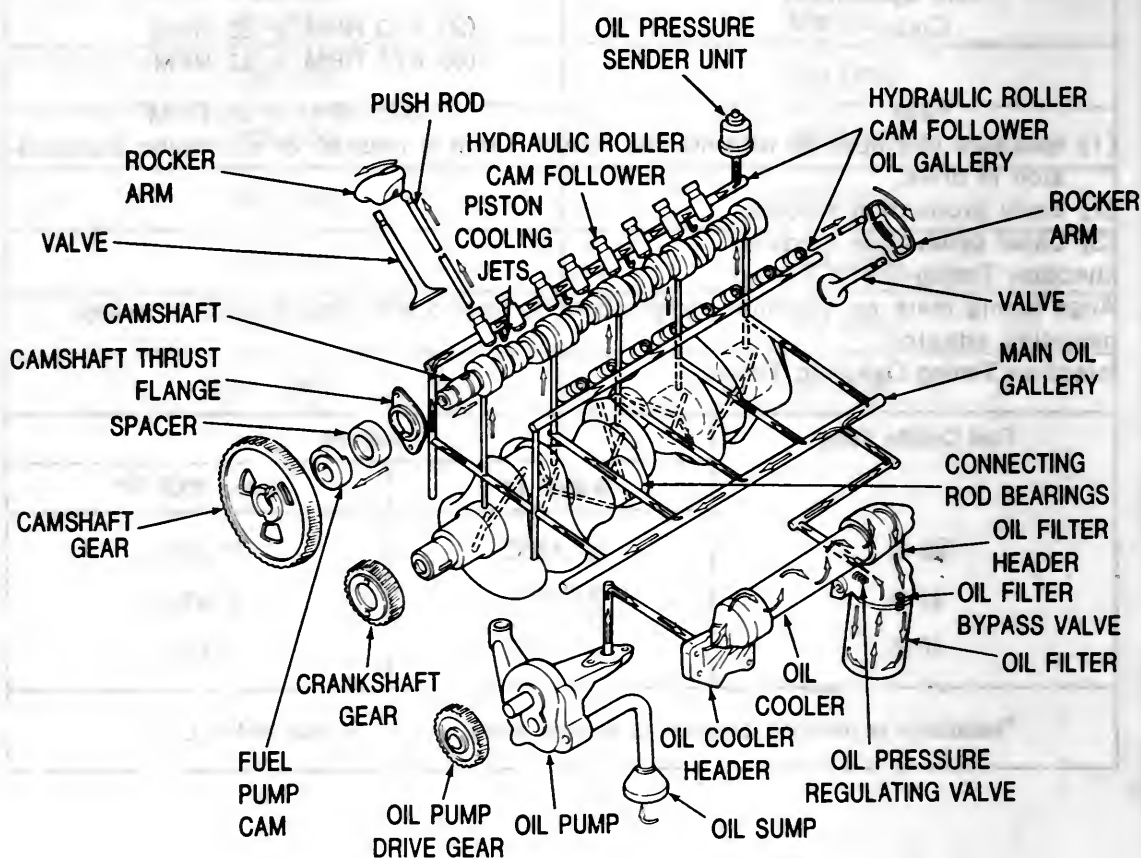
Injection Timing-Static Timing

Align timing mark on injection pump mounting flange with timing mark on pump mounting adaptor.

Injection Timing-Dynamic Timing

Fuel Cetane Value	Altitude	
	0-3000 Ft*	Above 3000 Ft*
38-42	3.5° ATDC	4.5° ATDC
43-46	2.5° ATDC	3.5° ATDC
47 or greater	1.5° ATDC	2.5° ATDC
*Installation or resetting tolerance for dynamic timing is \pm 1°. Service limit is \pm 2°.		

OIL FLOW



SERVICE SPECIFICATIONS

General Specifications

Bore and Stroke	Firing Order	Oil Pressure Hot @ 2000 RPM kPa (PSI)	Engine Type and Number of Cylinders	Compression Ratio
4.00" x 4.18"	1-2-7-3-4-5-6-8	276-414 (40-60)	O.H.V. V-8	20.7 to 1

Belt Tension

Belt Size	Newly Installed(1)		Used Over 10 Min.	
	Kg	(lb)	Kg	(lb)
All	55-72	120-160	34-54	75-120(2)

(1) Tension measured immediately after belt is installed and before it is stretched or seats in pulley grooves (all belts).

(2) If less than 34 Kg (75 lbs), readjust to 41-54 Kg (90-120 lbs).

Cylinder Head

Pre-Chamber Insert Protrusion	Valve Guide Bore Diameter		Valve Seat Width(1)		Valve Seat Runout TIR Maximum	Valve Arrangement Front to rear	Gasket Surface Flatness (2)
	Intake	Exhaust	Intake	Exhaust			
(-.002)- (+.002)	.3736	.3736	.080 ± .015	.080 ± .015	.002	LT E-I-E-I-E-I-E-I RT I-E-I-E-I-E-I-E	.003 in any 6 in. .006 overall

(1) Valve seat angle — Intake 30° and Exhaust 37.5°

(2) Gasket surface finish — RMS 60-150.

SERVICE SPECIFICATIONS — CONT'D

Valve Rocker Arm Shaft, Push Rods and Tappets

Type	Push Rod Runout TIR Maximum	Valve Tappet or Lifter			Collapsed Tappet Gap (Clearance)
		Standard Diameter	Clearance to Bore(1)	Hydraulic Lifter Leakdown Rate(2)	
Hydraulic Roller Follower	0.015	.9209 .9217	.0011 .0034	12 to 90 Sec. For .125 Travel	

- (1) Service limit — .005
 (2) Time required for plunger to leakdown .125 in. under load of 50 lbs. using leakdown fluid in tappet.

Valve Springs

Valve Spring Compression Pressure Lbs. @ Specified Height		Valve Spring Free Length (Approximate)		Valve Spring Assembled Height		Valve Spring Out of Square Maximum
Intake(1)	Exhaust	Intake	Exhaust	Intake	Exhaust	
60 @ 1.798	60 @ 1.798	2.040	2.040			5/64(.078)

- (1) Service Limit — 10% loss of pressure.

SERVICE SPECIFICATIONS — CONT'D

Valves

Valve Stem to Guide Clearance(1)		Valve Face Angle		Valve Face Runout TIR Maximum
Intake	Exhaust	Intake	Exhaust	
.0012-.0029	.0012-.0029	30°	37.5°	.002

(1) Service clearance — .0055

Valve Stem Diameter		Valve Head Recession Relative To Deck Surface	
Intake	Exhaust	Intake	Exhaust
.37165-.37235	.37165-.37235	.042-.052	.043-.055

Camshaft

Camshaft End Play		Camshaft Journal to Bearing Clearance
End Play	Service Limit	
.001-.009	—	.025-.140mm (.001-.0055")

Camshaft Drive

Camshaft Bearing Inside Diameter					Camshaft Front Bearing Location(1)	Gear Backlash
No. 1	No. 2	No. 3	No. 4	No. 5		
2.1010- 2.1045	2.1020- 2.1055	2.1020- 2.1055	2.1020- 2.1055	2.1020- 2.1055	.040-.060	.0015-.013

(1) Distance in inches that front edge of the bearing is installed below the front face of the cylinder block.

Injection Pump Drive Gear Backlash — .0055-.0010

Cylinder Block

Cylinder Bore Diameter(1)	Main Bearing Inside Diameter(2)	Head Gasket Surface Flatness	Head Gasket Surface Finish
3.9995-4.0015	3.1254-3.1274	.003 in any 6 in. .006 overall	RMS 90-150

(1) Maximum Out-of-Round — 0.0003

(2) Service Limit — 0.012

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel

Engine		Main Bearing Journal Diameter(1)	Main Bearing Journal Runout TIR Maximum(2)	Main Bearing Thrust Face Runout TIR Maximum	Main Bearing Journal Taper Maximum Per Inch	Thrust Bearing Journal Length	Main and Rod Bearing Journal Finish RMS Maximum	Main Bearing Thrust Face Finish RMS Maximum
6.9L Diesel		3.1228-3.1236	.002	.001	.0005	1.1325-1.1355	5-20	25 Front — 23 Rear
Undersize	0.010	3.1128-3.1136						
	0.020	3.1028-3.1036						
	0.030	3.0928-3.0936						

(1) Maximum Out-of-Round — 0.0002.

(2) Service Limit — 0.005

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel — Cont'd

Engine		Connecting Rod Journal Diameter (1)	Connecting Rod Journal Taper Per Inch Maximum	Crankshaft End Play (2)	Flywheel and Ring Gear Runout
6.9L Diesel		2.4980-2.4990	.0005	.002-.009	.008
Undersize	0.010	2.488-2.489			Flywheel and Ring Gear Concentricity
	0.020	2.478-2.479			
	0.030	2.468-2.469			.008

(1) Maximum out-of-round — .0003

(2) Service limit — .012

Crankshaft Bearings

Connecting Rod Bearing to Crankshaft Clearance Selective Fit			Main Bearing to Crankshaft Clearance Selective Fit		
Desired	Allowable	Bearing Wall Thickness Std.	Desired	Allowable	Bearing Wall Thickness Std.
.0011-.0026	.0011-.0036	—	.0018-.0036	.0018-.0046	—

Connecting Rod

Piston Pin Bore or Bushing I.D.	Rod Bearing Bore I.D. (1)	Rod Length Center to Center	Connecting Rod Alignment Maximum Total Difference		Rod to Crankshaft Assembled Side Clearance
			Twist (2)	Bend (2)	
1.1105-1.1107	2.5001-2.5016		.016	.008	.008-.020

(1) Connecting rod bearing bore maximum out-of-round — .005 and maximum bore taper — .0005.

(2) Pin bushing and crankshaft bore must be parallel and in same vertical plane with-in specified total difference when measured at the ends of an 8-inch long bar, 4 inches on each side of rod centerline.

SERVICE SPECIFICATIONS — CONT'D

Crankshaft and Flywheel — Cont'd

Piston

Skirt Diameter (1) (2)	Piston to Bore Clearance Selective Fit	Piston Pin Bore Diameter	Piston Height Above Crankcase
Standard			
3.9935-3.9955	.0055-.0065	1.1104-1.1106	.010-.031

(1) Measured at 90° to the pin, at 1.25 inch below oil ring groove.

(2) Service piston is 3.9945-3.9955.

Piston Pin

Length	Diameter	Ring End Clearance	To Piston Pin Bore Clearance (1)	To Connecting Rod Bushing Clearance
2.692-2.703	1.1099-1.1101	.001-.029	.0003-.0007	.0004-.0008

(1) Selective Fit.

Piston Rings

Ring Diameters	Side Clearance (1)			Ring Gap		
	Compression		Oil	Compression		Oil
	Top	Bottom		Top	Bottom	
101.6mm (4.00 in.)	.002-.004	.002-.004	.001-.003	.014-.024	.060-.070	.010-.024

(1) Service limit — .002 maximum increase in clearance.

SERVICE SPECIFICATIONS — CONT'D

Oil Pump, Oil Cooler and Oil Capacity

Engine	Oil Pump Pressures		Engine Oil Capacity(1)			Oil Pump Gear Backlash
	Curb Idle	2200 RPM	U.S. Qts.	Imperial Qts.	Liters	
6.9L Diesel	69 kPa (10 psi)	276-483 kPa 40-70 psi	9	9.7	8.5	.0015-.013

(1) Add 1 U.S. quart (or equivalent in Imperial quarts or liters) when replacing filter.

NOTE: Unless otherwise specified, use standard torque chart. Torque values are with threads and washer faces coated with engine oil. Torque values are listed without tolerance. Variations to torque will occur due to torque wrench calibration. Variation should be within 10% of nominal values.

Torque Specifications

Standard Torque

1/4x20 UNC	5/16-18 UNC	3/8-16 UNC	7/16-14 UNC	1/2x13 UNC
9.5 N·m (7 ft-lb)	19 N·m (14 ft-lb)	32 N·m (24 ft-lb)	51 N·m (38 ft-lb)	81 N·m (60 ft-lb)

Pipe Threads

1/8x27	1/4x18	3/8x18	1/2x14
7-11 N·m (5-8 ft-lb)	17-24 N·m (12-18 ft-lb)	30-44 N·m (22-33 ft-lb)	34-47 N·m (25-35 ft-lb)

Item	N·m	Ft-Lb
Camshaft Gear Screw	17-24	12-18
Connecting Rod Nut	(2)	
Crankcase Front Cover	(1)	
Cylinder Head Bolts	(3)	
Damper to Crankshaft	122	90
CDR Valve	(1)	
Fuel Supply Pump	(1)	
Fuel Filter Adapter to Brake	33-52	24-39
Fuel Filter Bracket to Cylinder Block	33-52	24-39

(1) Use Standard Torque Chart Above

(2) Tighten to 52 N·m (38 ft-lb), then to 62-68 N·m (46-51 ft-lb)

(3) Tighten to 54 N·m (40 ft-lb), then to 88 N·m (65 ft-lb), then to 101 N·m (75 ft-lb), and again to 101 N·m (75 ft-lb) in sequence.

(4) Tighten to 101 N·m (75 ft-lb), then to 129 N·m (95 ft-lb)

(5) RTV Sealer required, refer to Light Truck Engine Shop manual.

(6) Tighten using Standard Torque Chart above, then tighten again in sequence.

(7) Tighten to 8 N·m (6 ft-lb), then tighten again to 8 N·m (6 ft-lb) in sequence.

(8) Tighten to 41 N·m (30 ft-lb), then tighten again to 41 N·m (30 ft-lb) in sequence.

TORQUE SPECIFICATIONS — CONT'D

Item	N-m	Ft-Lb
Fuel Filter to Adapter	1/2 turn after gasket contacts sealing surface	
Flywheel to Crankshaft	64	47
Main Bearing Cap Bolts	(4)	
Manifold — Exhaust	41	(8) 30
Manifold — Intake	(6)	
Oil Filter to Header Adapter	1-1/4 to 2 turns after gasket contacts sealing surface — oiled gasket	
Oil Cooler to Cylinder Block	(1)	
Oil Cooler Plug	21	15
Oil Pan Drain Plug	38	28
Oil Pan to Cylinder Block	(1)	
Pulley to Vibration Damper	(1)	
Valve Cover Screw	8	(7) 6
Valve Lever Post Bolt	27	20
Glow Plug	16	12
Nozzle Assembly	47	35
Nozzle Connector Nut	30	22
Injection Pump Outlet Fitting Nut	30	22
Injection Pump Adapter	19	14
Injection Pump Gear Mounting Bolts	34	25
Water Pump to Front Cover	19	(5) 14
Heater Hose Connector (Water Pump, Cylinder Head)	17-24	12-18
Oil Pressure Hose Assembly	20-27	15-20
Alternator Bracket to Cylinder Block	33-52	24-39
Alternator Pivot Bolt	38-71	28-53
Alternator Support Bracket to Water Pump	33-52	24-39
Alternator Adjusting Arm to Support	33-52	24-39
Alternator Adjusting Bolt	33-52	24-39
Water Outlet (Thermostat)	27	20

- (1) Use Standard Torque Chart Above
- (2) Tighten to 52 N-m (38 ft-lb), then to 66-72 N-m (48.5-53.5 ft-lb)
- (3) Tighten to 54 N-m (40 ft-lb), then to 95 N-m (70 ft-lb), then to 108 N-m (80 ft-lb), and again to 101 N-m (75 ft-lb) in sequence.
- (4) Tighten to 101 N-m (75 ft-lb), then to 129 N-m (95 ft-lb)
- (5) RTV Sealer required, refer to Light Truck Engine Shop manual.
- (6) Tighten using Standard Torque Chart above, then tighten again in sequence.
- (7) Tighten to 8 N-m (6 ft-lb), then tighten again to 8 N-m (6 ft-lb) in sequence.
- (8) Tighten to 41 N-m (30 ft-lb), then tighten again to 41 N-m (30 ft-lb) in sequence.

TORQUE SPECIFICATIONS — CONT'D

Pipe Threads — Cont'd

Item	N-m	Ft-Lb
Nozzle Assembly	45	33
Nozzle Connector Nut	30	22
Injection Pump Outlet Fitting Nut	30	22
Injection Pump Adapter	19	14
Water Pump to Front Cover	19 (5)	14
Heater Hose Connector (Water Pump, Cylinder Head)	17-24	12-18
Oil Pressure Hose Assembly	20-27	15-20
Alternator Bracket to Cylinder Block	33-52	24-39
Alternator Pivot Bolt	38-71	28-53
Alternator Support Bracket to Water Pump	33-52	24-39
Alternator Adjusting Arm to Support	33-52	24-39
Alternator Adjusting Bolt	33-52	24-39
Water Outlet (Thermostat)	27	20

MECHANICAL FUEL PUMP

Flow and Pressure

Engine Liter (CID)	Static Pressure kPa (PSI)(1)	Min. Volume Flow
2.0L/2.3L	34.47-41.47 (5.0)-(7.0)	.473 liters (1 pint) in 25 seconds
2.8L V-6	31-44.8 (4.5-6.5)	.473 liters (1 pint) in 30 seconds
4.9 (300)	(5-7)	—
5.0 (302)	(6-8)	—
5.8W (351W)	(6-8)	—
7.5 (460)	(6-8)	—

(1) On engine with temperatures normalized and at normal curb idle speed, transmission neutral.

Torque Specifications

Engine Liter	Mounting Bolts N-m (Ft-Lb)	Fuel Lines to Pump N-m (Ft-Lbs)
2.0L/2.3L I-4	19-29 (14-21)	—
2.8L V-6	20-24 (15-18)	—
4.9L	16-24 (12-18)	20-24 (15-18)
5.0L	26-37 (19-27)	20-24 (15-18)
5.8L (W)	26-37 (19-27)	20-24 (15-18)
7.5L	26-37 (19-27)	20-24 (15-18)

Fuel Tanks, Lines and Filters

Torque Specifications — Ranger

Item	N-m	In-Lb
Carbon Canister Mounting Bracket Screws	8-12	70-105
Carbon Canister to Bracket Screw	3-4	25-35
Fuel Tank Mounting Nuts	25-33	18-25 (Ft-Lb)
Fill Pipe Clamp	3-4	25-35
Inlet Pipe to Body Screws	2-4	17-35
Filter to Carburetor	9-11	80-100
Fuel Supply Tube Nut	20-24	15-18 (Ft-Lb)
Midship Tank Skid Plate Bolts and Nuts (4x4)	20-27	15-19 (Ft-Lb)
Aft Tank Skid Plate Nuts	36-50	27-36 (Ft-Lb)
Fuel Selector Valve Bracket to Frame Bolts (Dual Fuel Tanks)	30-41	23-30 (Ft-Lb)

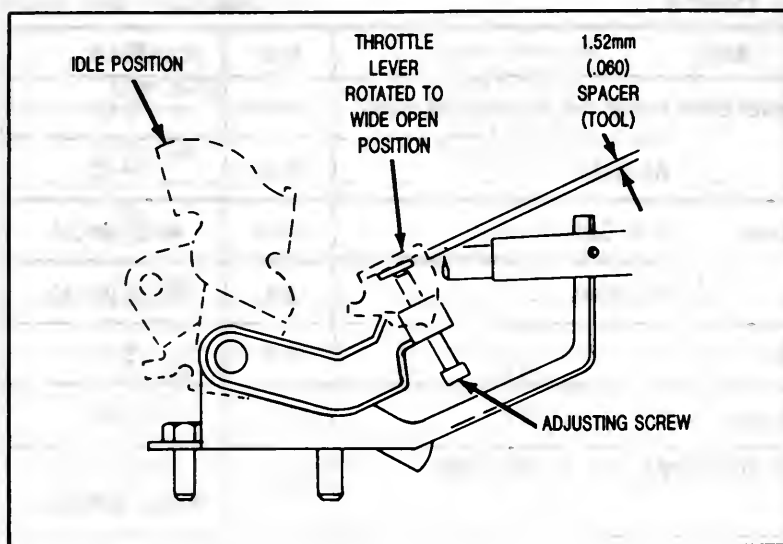
Powertrain — Fuel System

FUEL TANKS, LINES AND FILTERS — CONT'D

Torque Specifications — Cont'd

Item	N-m	Ft-Lb
Carbon Canister Mounting Bracket Bolts F-250 4x4, Bronco 5.8L Calif.	11-16	8-12
All others	19-30	14-22
Carbon Canister to Bracket Screw 5.8L Calif.	4.5-6	40-55 (In-Lb)
All others	3-4	25-35 (In-Lb)
Fuel Tank Strap Nuts — Bronco	7-9	5-7
Fuel Tank Attaching Nuts — Bronco	37-50	27-37
Fuel Tank Attaching Nuts — F-150-350 (Exc. 136.8, 160.8 WB) — Aft Tank	37-50	27-37 with thread adhesive
Skid Plate to Strap Nuts — F-150-350 136.8, 160.8 WB — Aft Tank	7-10	5-8
Fuel Tank Attaching Nuts — F-150-350 136.8, 160.8 WB — Aft Tank	34-47	25-35
Shield Attaching Bolts — F-150-350 136.8, 160.8 WB — Aft Tank	10-14	7-11
Hose Inlet Assembly on Fuel Tank — F-150-350 136.8, 160.8 WB — Aft Tank	18-25	13-19
Fuel Tank Attaching Nuts — F-150-350 Midship Tank — Gasoline Engines	17-24	12-18
Fuel Tank Attaching Nuts — F-150-350 Midship Tank — Diesel Engine	12-18	9-13
Fuel Tank Attaching Nuts — E-150-350 Aft Body Mounted Tanks	10-14	7-11
Fuel Tank Attaching Nuts — E-150-350 Aft Frame Mounted Tank	61-75	45-56
Fuel Tank Attaching Nuts — E-150-350 Midship Tank	48-67	35-50
Filler Pipe to Body Screws — All	2-3	17-25 (In-Lb)
Filler Hose Clamps	3-4	25-35 (In-Lb)

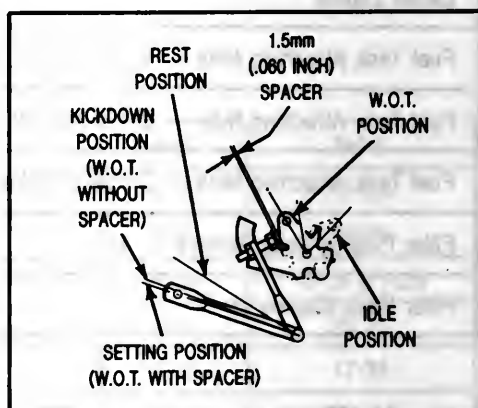
THROTTLE LINKAGE ADJUSTMENT — RANGER



- (1) Place 13.20 kg (6 lb) weight on kickdown lever.
- (2) Rotate throttle to wide open position.
- (3) Insert 1.52mm (.06 inch) spacer between throttle lever and adjusting screw.
- (4) Rotate adjusting screw until contact is made between screw and 1.52mm (.06 inch) spacer.
- (5) Remove spacer.
- (6) After adjustment, a gap of 0.025 to 0.203mm (.001 to .008 inch).
- (7) Remove weight from kickdown lever.

THROTTLE LINKAGE ADJUSTMENT — E-150-350 WITH 4.9L ENGINE

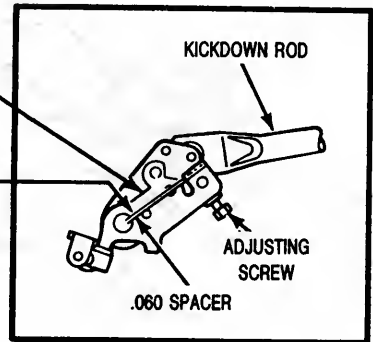
- (1) Apply 6 lb. weight to transmission kickdown lever.
- (2) Rotate throttle to wide open position.
- (3) Insert 1.5mm (.060 inch) spacer between throttle lever and adjusting screw.
- (4) Rotate adjusting screw until contact is made between screw and 1.5mm (.060 inch) spacer then tighten locknut.
- (5) Remove 1.5mm (.060 inch) spacer.
- (6) After removing the spacer a gap of 1.78mm (.070 inch) to .25mm (.010 inch) is acceptable.
- (7) 1.78-.25mm (0.70-0.10 inch) gap to be verified in accordance with a frequency.
- (8) Remove 6 lb. weight.



THROTTLE LINKAGE — CONT'D

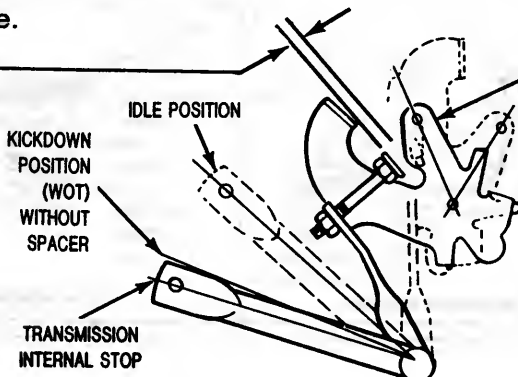
E-150-350 with 5.0L, 5.8L, 7.5L Engines

- (1) Place 6 lb. weight to transmission kickdown lever.
- (2) Rotate throttle to wide open position.
- (3) Insert 1.5mm (.060 inch) spacer between throttle lever and adjusting screw.
- (4) Rotate adjusting screw until contact is made between screw and 1.5mm (.060 inch) spacer.
- (5) Remove 1.5mm (.060 inch) spacer.
- (6) After removing the spacer a gap of 1.78mm (.070 inch) to .25mm (.010 inch) is acceptable.
- (7) 1.78-.25mm (.070-.010 inch) gap to be verified in accordance with a frequency.
- (8) Remove 6 lb. weight.



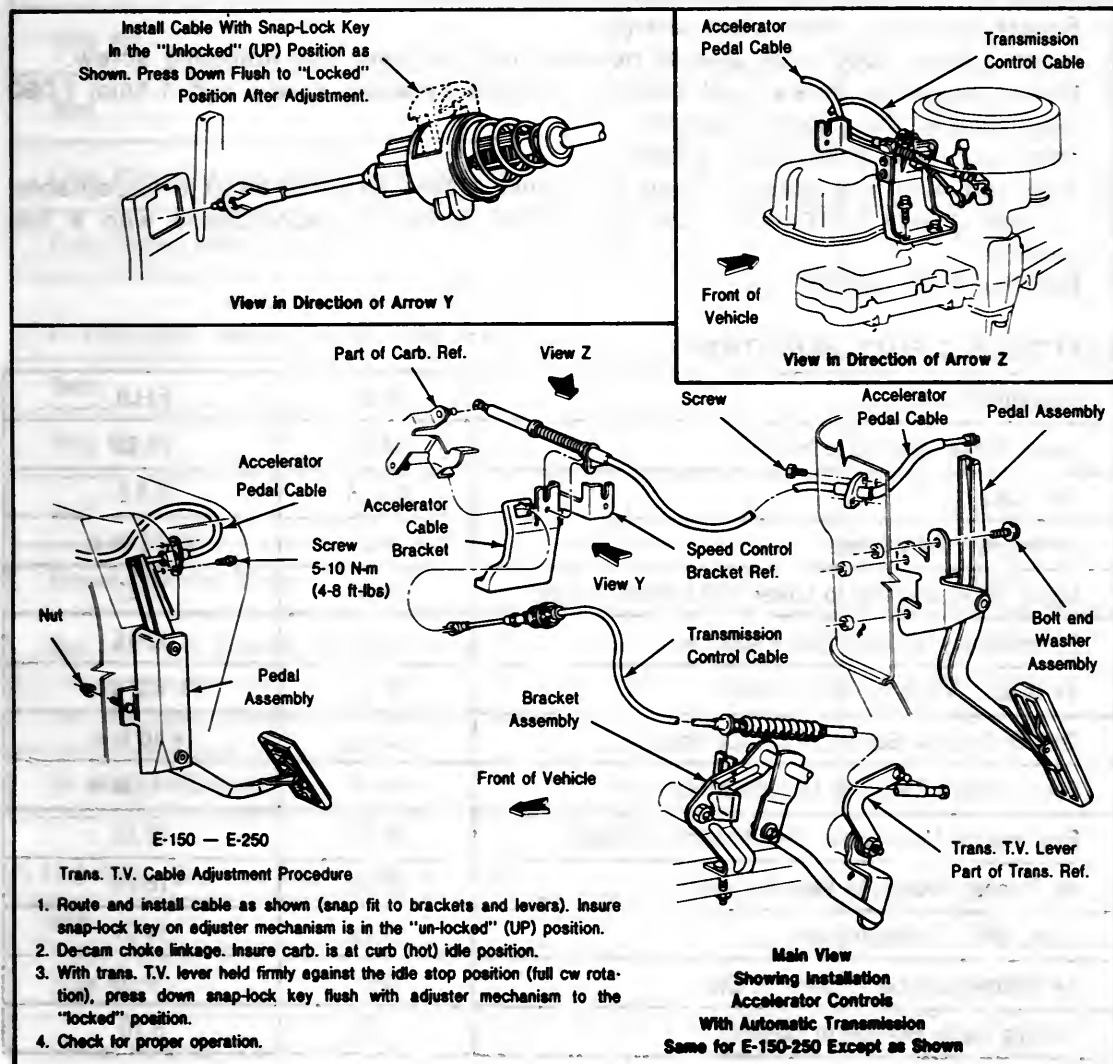
F-150-350 (4x2), F-150-250 (4x4), Bronco with 4.9L Engine

- (1) Apply 6 lb. weight to transmission kickdown lever.
- (2) Rotate throttle to wide open position.
- (3) Insert 1.5mm (.060) spacer between throttle lever and adjusting screw.
- (4) Rotate adjusting screw until contact is made between screw and 1.5mm (.060 spacer) then tighten locknut.
- (5) Remove 1.5mm (.060 spacer) and 6 lb. weight.
- (6) After Removing the spacer a gap of 1.77-.25mm (.070 to .010) is acceptable.
- (7) 1.77-.25mm (.070-.010) gap to be verified in accordance with a frequency.



THROTTLE LINKAGE — CONT'D

F-150, E-150-350 with 4.9L Engine and AOD Transmission



THROTTLE LINKAGE — CONT'D

F-250-350 with 6.9L Diesel Engine

1. Apply 6 lb. weight to transmission kickdown lever.
2. Rotate throttle to wide open position.
3. Insert 1.5mm (.060 inch) spacer between throttle lever and adjusting screw.
4. Rotate adjusting screw until contact is made between screw and 1.5mm (.060 inch) spacer then tighten locknut.
5. Remove 1.5mm (.060 inch) spacer.
6. After removing the spacer, a gap of 1.77mm-.25mm to (.010 inch) is acceptable.
7. 1.77mm-.25mm (.070-.010 inch) gap to be verified in accordance with a frequency.
8. Remove 6 lb. weight.

ELECTRONIC FUEL INJECTION

Description	N-m	Ft-Lb
Lower Intake Manifold to Head	32-33	23-25
EGR Tube	8-11.5	6-8.5
Air Supply Tube Clamps	2-3	15-23 lb-in
Upper Intake Manifold to Lower Intake Manifold Bolts	20-30	15-22
Throttle Body to Upper Intake Manifold	16-20	12-15
Air Bypass Valve to Throttle Body	8-11	71-102 lb-in
Throttle Position Sensor to Throttle Body	1.2-1.8	14-16 lb-in
Fuel Pressure Regulator to Injector Manifold	3-4.5	27-40 lb-in
Fuel Injector Manifold to Fuel Charging Assembly	16-20	12-15
Air Cleaner Housing to Vane Air Meter	20-30	15-22
Cast Tube to Turbocharger	19-29	14-21
Air Cleaner Bracket to Manifold Stud	19-21	14-16
Throttle Cable Bracket to Manifold	11-13	8-10

TORQUE SPECIFICATIONS

Ranger

Item	N·m	in-lb
Wing Nut	1.7-2.8	15-25
Stud	7-9	5-7 (ft-lb)
Outer Shroud to Inner Shroud Retaining Nuts	6-8	50-70
Outer Shroud Attaching Screws	6-8	50-70

E, F-150-250, Bronco with 5.0L Engine

Item	N·m	in-lb
Wing Nut	1.7-2.8	15-25
Stud	8-12	6-8 (ft-lb)
Shroud Attaching Screws	6-8	4-6 (ft-lb)
Duct and Valve Assembly Bracket Screws	4-5.6	35-50
Duct and Valve Assembly to Air Intake Screws	1.3-1.7	12-15
Air Intake to Radiator Support Screw	4-5.6	35-50

F-150-350, Bronco with 4.9L Engine

Item	N·m	ft-lb
Wing Nut	1.7-2.8	15-25 (in-lb)
Shroud Retaining Nuts	6.3-9.6	55-80 (in-lb)
Support Bracket to Housing Screws	8-13	6-9
Support Bracket Mounting Nut	30-43	22-32
Intake Manifold Vacuum Fitting Mounting Nut	20-32	15-24

TORQUE SPECIFICATIONS — CONT'D

E-150-350 with 4.9L Engine

Item	N·m	In-Lb
Mounting Screw	2-3	20-30
Air Intake Tube to Housing Screws	3-4	25-35
Shroud Retaining Nuts	4-5.6	35-50
Air Intake Tube to Lower Bracket Screw	4-5.6	35-50
Air Intake Tube to Radiator Support Screw	4-5.6	35-50
Air Intake Tube Upper Bracket Mounting Screw	3-4	25-35
Support Bracket to Engine Retaining Nut	30-43	22-32 (Ft-Lb)
Support Bracket to Housing Screws	15-21	11-16

E-250-350 with 7.5L Engine

Item	N·m	In-Lb
Wing Nut	2-3	15-25
Stud	8-12	6-8 (Ft-Lb)
Adapter to Housing Screws	3-4	25-35
Shroud Retaining Nuts	5.64-7.90	50-70
Air Intake to Duct and Valve Assembly Screws	1.3-1.7	12-15
Air Intake Bracket Screws	4-5.6	35-50
Air Intake to Radiator Support Screw	4-5.6	35-50

TORQUE SPECIFICATIONS

Exhaust System Bolts and Nuts

Unless otherwise specified, the following torque ranges are to be used for fitting or fastener diameters as indicated.

Bolt or Nut Diameter	Torque Range
8mm	16-23 N-m (12-17 ft-lb)
10mm	25-35 N-m (19-25 ft-lb)
12mm	34-46 N-m (34-46 ft-lb)

Specific Applications — Ranger

Item	Torque	
	N-m	(Ft-Lb)
Inlet Pipe to Exhaust Manifold	34-46	25-34
U-Bolt (Managed Thermactor Air [M.T.A.])	6.5-11	5-8
Converter Pipe Assembly to Muffler and Outlet Pipe Assembly	25-35	19-25
Muffler Shield	16-23	12-17

Specific Applications — E-, F-150-350, Bronco

Item	Torque	
	N-m	(Ft-Lb)
Inlet pipe to exhaust manifold	34-52	25-38
U-bolt (Managed Thermactor Air (M.T.A.))	6.5-11	5-8
U-bolt (inlet pipe to catalytic converter)	49-61	35-45
U-bolt (inlet pipe to catalytic converter) (1) (2)	41-54	30-40
U-bolt (catalytic converter to outlet pipe, muffler or extension pipe)	49-61	35-45
U-bolt (catalytic converter to outlet pipe, muffler or extension pipe) (1) (2)	41-54	30-40
U-bolt (inlet pipe to muffler w/o catalytic converter) (5) (6)	49-61	35-45
Bracket and insulator to frame	23-33	17-24
Bracket and insulator to frame (2) (3) (4)	17-23	12-17
Bracket or insulator to pipe or muffler	23-33	17-24
U-bolt (connecting bracket or insulator to pipe) (1) (2) (3) (4)	17-23	12-17
Screw attaching clamp from bracket to pipe (2) (3) (4)	10-14	7-11

- (1) E-150 — E-350 4.9L (300 CID) I-6 Engine Exhaust System
- (2) E-150 — E-250 5.0L (302 CID) V-8 Engine Exhaust System
- (3) E-150 — E-350 5.8L (351 CID) W-V-8 Engine Exhaust System
- (4) E-150 — E-350 5.8L (351 CID) M-V-8, Engines and E-250 — E350 7.5L (460 CID) V-8, 5.8L (351 CID) Engines Exhaust Systems.
- (5) Bronco — 4.9L (300 CID) I-6 Engine Exhaust System
- (6) F-350 Cab Chassis — 4.9L (300 CID) I-6 Engine Exhaust System

Powertrain — Cooling System

COOLING SYSTEM DATA — ALL VEHICLES

System Type.....	Pressurized, Series Flow
Radiator Type:	
Ranger, F-Series, Bronco.....	Crossflow, Tube & Fin
Econoline.....	Downflow, Tube & Fin
Thermostat Type, Gas Engines.....	Poppet, Pellet Activated
Water Pump, Gas Engines.....	Centrifugal, Prelubricated

Cooling System Pressures

Application	Operating Pressure kPa/Psi	Min. Test Pressure kPa/Psi
All Vehicles	89/13	69/10

Pressure Test For Leaks (All Vehicles).....97-110kPa (14-16 Psi)

Thermostat Test (All Vehicles)

When immersed in boiling (212°F/100°C) water, the thermostat should open more than 6.35mm (1/4 inch).

Drive Belt Tension

Belt Width	Minimum Tension (for use at maintenance interval only) (Hot Engine)	Installation Tension	
		Used Belt(1)	New Belt
1/4"	18 kg (40 lbs.)	18-27 kg (40-60 lbs.)	22.7-36.2 kg 50-80 lbs.
3/8" and 15/32"	(100-130 lbs.)	40.8-54.4 kg (90-120 lbs.)	54.5-72.5 kg 120-160 lbs.
1/2"	(110-130 lbs.)	40.8-54.4 kg (90-120 lbs.)	54.5-72.5 kg 120-160 lbs.

(1) Any belt that has operated for ten minutes or more is considered a used belt.

Accessory Drive Belt Tension — Kg (Lbs) — Ranger

Belt Type	New Installation(1)	Used Belt/Reset(2)	Allowable Minimum(3)
1/4" "V" (Air Pump Only)	22.68-36.28 (50-90)	18.14-27.21 (40-60)	18.14 (40)
"V"-Ribbed (All Others)	63-50-81.64 (150-190)	58.97-72.57 (140-160)	40.82 (90)

(1) New installation, no run time.

(2) Used belt, more than 10 minutes of operation.

(3) When checking tension on a used belt, the tension must be above the "allowable minimum." If below minimum, it must be "Reset" (adjusted).

Item	N-m	(ft-lb)
Alternator Bracket Pivot Bolt (2.0L and 2.3L)	61-78	45-57
Alternator Bracket Pivot Bolt (2.8L)	33-54	24-40
Alternator Belt (2.8L) (1)	New 533-711 Used 489-578	120-160 110-130
Alternator Belt (2.0L and 2.3L) (1)	New 667-845 Used 622-711	150-190 140-160

Powertrain — Cooling System

ACCESSORY DRIVE BELT TENSION — E-, F-150-350, BRONCO

Belt Tension	New — Newtons (Pounds)	Used (Over 10 Min. Operated) — Newtons (Pounds)
Thermactor 4.9L (300 CID) w/o A/C	400-577N (90-130 Lbs.)	355-444N (80-100 Lbs.)
Thermactor — All Except 4.9L (300 CID) w/o A/C	400-578N (90-130 Lbs.)	356-445N (80-100 Lbs.)
A/C Compressor, Power Steering, Alternator	534-711N (120-160 Lbs.)	489-578N (110-130 Lbs.)

Torque Specifications

Ranger

Description		N-m	(ft-lb)
Radiator Hose Clamp Double Wire Clamp		2.26-3.39	(20-30 in-lb)
Thermostat Housing		17-20	(12-15)
Radiator Top Brackets to Radiator Support		11-14	(8-11)
Radiator Support to Frame Insulator Bolts		41-47	(30-35)
Clutch to Water Pump Pulley		19-27	(14-20)
Fan to Water Pump		4.5-5.8	(6.2-7.9)
Shroud to Radiator		3.0-4.4	(4-6)
Water Filter Hose Clip to Air Inlet Housing	3/8-16	28-33	(20-25)
Water Filter Hose Clip to Engine Idler Gear Cover	3/8-16	40-48	(29-36)
Transmission Oil Line Fitting to Radiator		24-31	(18-23)
Transmission Oil Line Nut to Fitting on Radiator		17-24	(12-18)
Clutch to Water Pump Adapter Fan to Clutch		6-8	(50-70 lb-in)

Powertrain — Cooling System

TORQUE SPECIFICATIONS — CONT'D

E-, F-150-350 Bronco

Description	N-m	(ft-lb)
Radiator to Body Sheet Metal — E-150-E-350	14-20	(10-15)
Radiator Hose Clamp Double Wire Clamp — Bronco, F-150-F-350, E-150-E-350	2.26-3.39	(20-30 in-lb)
Radiator Hose Clamps Radial Screw — F-150-F-250 and Bronco	1.80-2.71	(16-24 in-lb)
Thermostat Housing 4.9L (300 CID) Six	17-20	(12-15)
V-8 Engines except 7.5L (460 CID)	17-24	(12-18)
7.5L (460 CID)	32-37	(23-28)
Radiator Top Brackets to Radiator Support — F-150-F-350 and Bronco	11-14	(8-11)
Radiator Support to Frame Insulator Bolts	41-47	(30-35)
Fan to Water Pump — Bronco, E-150-E-350, F-150-350 (Except 6.9L Diesel)	17-24	(12-18)
Fan to Clutch (6.9L Diesel)	24	(18)
Clutch/Fan Assembly to Water Pump (6.9L Diesel)	41	(30)
Shroud to Radiator — F-150-F-350, Bronco, E-150-E-350	7-10	(5-8)
Water Filter Hose Clip to Air Inlet Housing 3/8-16	28-33	(20-25)
Water Filter Hose Clip to Engine Idler Gear Cover 3/8-16	40-48	(29-36)
Transmission Oil Line Fitting to Radiator — F-150-F-350 and Bronco	24-31	(18-23)
Transmission Oil Line Nut to Fitting on Radiator — F-150-F-350 and Bronco	17-24	(12-18)

Powertrain — Starting System

POSITIVE ENGAGEMENT STARTER — ALL VEHICLES

Positive Engagement Starter Motor				Starter Brushes			Through Bolt Torque N-m (in-lb)	Mounting Bolt Torque N-m (ft-lb)
Dia. mm (Inches)	Current Draw Under Normal Load (Amps)	Normal Engine Cranking Speed (rpm)	Current Draw No. Load (Amps)	Mfg. Length mm (Inches)	Wear Limit mm (Inches)	Spring Tension kg (Ounces)		
101.60 (4) and 114.30 (4-1/2)	50-180	150-290	80	12.2 (0.50)	6.35 (0.25)	1.134 (80)	6.21-8.47 (55-75)	21-27 (15-20)

Maximum Commutator runout is 0.1270mm (0.005 inch). Maximum starting circuit voltage drop (battery positive terminal to starter terminal) at normal engine temperature is 0.5 volt.

Torque Specifications

Starter Mounting Bolts 21-27 N-m. (15-20 ft-lb)
Through Bolts 6-8 N-m (55-75 in-lb)

Positive Engagement Starter — 6.9L Diesel Engine

Positive Engagement Starter Motor				Starter Brushes			Through Bolt Torque N-m (in-lb)	Mounting Bolt Torque N-m (ft-lb)
Dia. mm (Inches)	Current Draw Under Normal Load (Amps)	Normal Engine Cranking Speed (rpm)	Current Draw No. Load (Amps)	Mfg. Length mm (Inches)	Wear Limit mm (Inches)	Spring Tension kg (Ounces)		
114 (4.5)	430-530	170-230	120-200	19.0 (0.75)	6.0 (0.24)	1.4 (50)	6.2-9.6 (55-85)	20-27 (15-20)

Electrical Systems — Charging System

BATTERY DISCHARGE RATES — ALL VEHICLES

Capacity Test Battery Discharge Rates	
Battery Capacity (Amperes)	Discharge Rate (Amperes)
36 Maintenance-Free	155
45 Maintenance-Free	190
*48 Maintenance-Free	205
54 Maintenance-Free	225
63 Maintenance-Free	260
68 Maintenance-Free	235
83 Maintenance-Free	350
*77 Conventional Batt.	225
81 Conventional Batt.	175

*Passenger car batteries not used in light trucks.

Battery Voltage Test Specifications — All Vehicles

Capacity Test Voltage Readings for Good Battery	
Approximate Temperature	Minimum Voltage
70°F (21°C)	9.6
60°F (15°C)	9.5
50°F (10°C)	9.4
40°F (4°C)	9.3
30°F (−1°C)	9.1
19°F (−7°C)	8.9
10°F (−12°C)	8.7
0°F (−18°C)	8.5

Electrical Systems — Charging System

SERVICE SPECIFICATIONS

Alternator — Rear Terminal — Ranger, E,F-150-350, Bronco

Supplier	Stamp Color	Rating		Field Current Amps @ 12V	Slip-Ring Turning mm (inches)		Brush Length mm (inches)	
		Amperes @ 15V	Watts @ 15V		Min. Dia.	Max. Runout	New	Wear Limit
Ford	Red	40 Hi Eff	600	2.8	31 (1.22)	.0127 (0.0005)	12.19 (.480)	6.35 (1/4)
Ford	Green	60	900	4.0	31 (1.22)	.0127 (0.0005)	12.19 (.480)	6.35 (1/4)

Electrical Systems — Charging System

SERVICE SPECIFICATIONS — CONT'D

Alternator-Side Terminal — E-, F-150-350, Bronco

Rating		Field Current Amps @ 12V	Stamp Color	Slip Ring Turning mm (Inches)		Brush Length mm (Inches)	
Amperes @ 15V	Watts @ 15V			Min. Dia.	Max. Runout	** New	Wear Limit
70	1050	4.25	Black	31 (1.22)	.0127 (0.0005)	12.19 (.480)	6.35 (1/4)
100	1500	4.25	Red	31 (1.22)	.0127 (0.0005)	12.19 (.480)	6.35 (1/4)

** Add .635mm (.025 inch) for positive brush length.

Torque Specifications

Item		N-m	In-Lb
Alternator Adjuster Bolt		6.8-10.1	60-90 (Ft-Lb)
Alternator Pivot Bolt	Rear Terminal	61-77	45-57 (Ft-Lb)
	Side Terminal	61-77	45-57 (Ft-Lb)
Wiring Assembly Retaining Nut		7-10	60-90
Bearing Retainer Attaching Screws		3-4-5	25-40
Pulley Nut		82-135	60-100 (Ft-Lb)
Brush Holder Attaching Screws		2-3	17-25
Insulators — Rear Terminal	Stator Terminal (black)	3-4	25-35
	Battery Terminal (red)	3-6	30-55
	Field Terminal (orange)	3-4	25-35
Insulators — Side Terminal	Battery Terminal	4-6	35-50
	Ground Terminal	3-4	25-30
Housing Through Bolts — Rear Terminal		4-7	35-60
Rectifier Attaching Screws — Side Terminal		5-7	40-50

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — RANGER

Lamp Description	Number of Bulbs Required	Trade Number
A/C Control Illumination (Optional)	1	161
A/C Control Pushbutton (Optional)	1	8605
Charge Indicator Light	1	194
AM, AM-FM or AM/FM/MPX Radio Dial Illumination	1	1893
AM/FM/MPX Tape Dial Illumination	2	(1)
Stereo Indicator Lamp	1	(1)
Ashtray Light	1	1892
Back-Up Light	2	1156
Brake Warning Light	1	194
Cargo Light (Optional)	1	912
Charging System Warning	1	194
Dome Light	1	912
Engine Coolant Temperature Warning	1	194
Fasten Seat Belt Warning Light	1	194
Front Parking Light and Turn Signal	2	1157
Front Side Marker Light	2	194
Glove Compartment Light	1	1891
Headlamps(3)	2	H6054
Headlight Switch Illumination	1	1815
Heater Control Illumination	1	161
Hi-Beam Indicator	1	194
Instrument Panel Gauge Illumination	5	194
Instrument Panel Courtesy Light	2	89
License Plate Light w/o Bumper	1	97
License Plate Light — RPO Rear Bumper	2	194
Transfer Case Lock Indicator Light	1	(2)
Oil Pressure Indicator Light	1	194
Rear Tail/Stop/Turn Light	2	1157
Turn Signal Indicator Light	2	194
Overhead Console Map Light	1	1816
Emissions Maintenance Warning Light	1	194
4x4 Indicator Light	1	194
Upshift Indicator Light	1	194

- (1) Replaceable at Ford authorized radio service centers.
- (2) Use Ford Part Number E27B-10C915-B.
- (3) Substitution of headlamp bulbs other than the original equipment or equivalent may result in a false warning or no warning in the Graphic Display Warning Indicator System.

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — F-150-350

Lamp Description	Number of Bulbs Required	Trade Number
A/C Control Illumination (Optional)	1	161
Charge Indicator Light	1	194
AM, AM-FM or AM/FM/MPX Radio Dial Illumination	1	1893
AM/FM/MPX Tape Dial Illumination	2	(5)
Stereo Indicator Lamp	1	(5)
Ash Tray Light	1	1892
Back-Up Light	2	1156
Brake Warning Light	1	194
Cargo Light (Optional)	1	912
Clearance Fender (Styleside w/Dual Rear Wheels)	4	194
Clearance Front	2	194
Dome Light	1	912
Fasten Seat Belt Warning Light	1	194
Front Parking Light and Turn Signal	2	1157
Front Side Marker Light	2	194
Glove Compartment Light	1	1891
Headlamps	2	H6054
Headlight Switch and Wipe/Wash Switch Illumination	1	1815
Heater Control Illumination	1	161
Hi-Beam Indicator	1	194
Identification Front	3	194
Identification Rear (Styleside w/Dual Rear Wheels)	3	194
Instrument Panel Gauge Illumination	5	194
Instrument Panel Courtesy Light	2	89
License Plate Light Styleside	1	97
License Plate Light — RPO Rear Bumper (Styleside)	2	194
Transfer Case Lock Indicator Light	1	194
Map/Dome Light (Optional) Dome	1	912
Map	2	105
Movable Underhood Lamp (Optional)	1	90
Oil Pressure Indicator Light	1	194
Rear Tail/Stop/Turn Light	2	1157
Roof Marker Lights	5	194
Turn Signal Indicator Light	2	194
Maintenance Warning Light	1	194

(5) Replaceable at Ford authorized radio service centers.

* D42B-13465-A bulb.

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — BRONCO II

Lamp Description	Number of Bulbs Required	Trade Number
A/C Control Illumination (Optional)	1	161
A/C Control Pushbutton	1	8605
Charge Indicator Light	1	194
AM, AM-FM or AM/FM/MPX Radio Dial Illumination	1	1893
AM/FM/MPX Tape Dial Illumination	2	(1)
Stereo Indicator Lamp	1	(1)
Ashtray Light	1	1892
Back-Up Light	2	1156
Brake Warning Light	1	194
Cargo Light (Optional)	1	906
Charging System Warning	1	194
Dome Light	1	912
Engine Coolant Temperature Warning	1	194
4x4 Indicator Light	1	194
Emission Maintenance Warning Light	1	194
Fasten Seat Belt Warning Light	1	194
Front Parking Light and Turn Signal	2	1157
Front Side Marker Light	2	194
Glove Compartment Light	1	1891
Headlamps	2	H6054
Headlight Switch Illumination	1	1815
Heater Control Illumination	1	161
Hi-Beam Indicator	1	194
Instrument Panel Gauge Illumination	5	194
Instrument Panel Courtesy Light	2	89
License Plate Light — RPO Rear Bumper	2	194
Transfer Case Lock Indicator Light	1	(2)
Oil Pressure Indicator Light	1	194
Rear Tail/Stop/Turn Light	2	1157
Turn Signal Indicator Light	2	194

(1) Replaceable at Ford authorized radio service centers.

(2) Use Ford Part Number E27B-10C915-B.

Electrical Systems — Lighting System

LIGHT BULB SPECIFICATIONS — E-150-350

Lamp Description	No. of Bulbs	Lamp Trade No.
A/C Control Illumination	1	161
Alternator Indicator Light	1	194 (5)
AM, AM-FM OR AM/FM/MPX Radio Dial Illumination	1	1893
AM/FM/MPX Tape Dial Illumination	2	(9)
Stereo Indicator Light	1	(9)
Automatic Transmission Gear Selector Dial Non-Tilt Column	1	161
Tilt Column	1	1445(6)
Back-up Lights	2	1156
Brake Warning Light	1	912 (5)
Cargo Light	1	561 (1)
Dome Light (Standard)	1	561
Fasten Seat Belt Warning Light	1	194 (5)
Front Side Marker Lights	2	194
Headlights (Hi and Lo Beam)	2	H6054 (8)
Headlight Switch and Wipe/Wash Switch Illumination	1	194

NOTES:

- (1) Trade Number 912 for Optional Cargo Light — Chateau Club Wagon
- (2) Standard
- (3) With air conditioning
- (4) Ford Part B8E-13465-A
- (5) Ford Part C8MB-13465-B
- (6) Heavy Duty
- (7) Replace with Ford Part No. D20Z-18C622-A (Bulb is an integral part of assembly)
- (8) Standard Halogen Headlamps E1EB-13007-AA
- (9) Replaceable at Ford authorized radio service center

LIGHT BULB SPECIFICATIONS — E-150-350 — CONT'D

Lamp Description	No. of Bulbs	Lamp Trade No.
Heater Control Illumination	1	161
Hi-Beam Indicator Light	1	194 (5)
Headlight Switch Illumination	1	1893
Instrument Panel Gauge Illumination	2	194 (5)
License Plate Light	2	194
Map/Dome Light	Dome	1
	Map	2
		912
		105
Map Pocket Courtesy Lamp	2	214-2
Oil Pressure Indicator Light	1	194 (5)
Rear Side Marker Lights	2	194 (5)
Rear Tail, Stop, and Turn Signal Lights	2	1157
School Bus Flasher Indicator Light	1	2162
School Bus Warning Lights	4	4640
Turn Signal Indicator Lights	2	194 (5)
Wiper/Washer Switch Illumination	1	1893 (3)
Prem. Sound On/Off Indicator Lamp Assy.	1	(7)

NOTES:

- (1) Trade Number 912 for Optional Car-go Light — Chateau Club Wagon
- (2) Standard
- (3) With air conditioning
- (4) Ford Part B8E-13465-A
- (5) Ford Part C8MB-13465-B
- (6) Heavy Duty
- (7) Replace with Ford Part No. D20Z-18C622-A (Bulb is an integral part of assembly)
- (8) Standard Halogen Headlamps E1EB-13007-AA
- (9) Replaceable at Ford authorized radio service center

TORQUE SPECIFICATIONS

Ranger

Item	N·m	In-Lb
Headlamp Attaching Screws	2-3	18-24
Turn Signal Switch Mounting Screws	2-3	18-24

E-, F-150-350, Bronco

Item	N·m	In-Lb
Fog Lamp Retaining Nuts (F-150-350, Bronco)	28-40	20-30 (Ft-Lb)
Roof Marker Lamp Attaching Screws (F-150-350)	1-2	10-20
Turn Signal Lever (All)	1-2	10-20
Dome and Cargo Lamp Attaching Screws (E-150-350)	2-3	16-23

SPEEDOMETER

Calibration Specifications

SPEEDOMETER HEAD ACCURACY AT 70°F			
Basic Head Indication	12 mph	36 mph	72 mph
Speedometer Head Input RPM	200	600	1200
Speed Indication Limits (mph)	9.7-14.3	35.2-40.2	72.7-77.7

Torque Specifications

Without Speed Control

Cable Assembly to Transmission Retaining Screw —	
Ranger, F-150-350, Bronco	2-3 N·m (20-25 in-lb)
E-150-350.....	4-6 N·m (36-54 in-lb)

With Speed Control

Speedometer Cable to Speed Sensor (Upper and Lower).....	3-5 N·m (30-40 in-lb)
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Electrical Instrument Components

Electrical Specifications — All Vehicles

Shift Indicator Lamp (4.9L Engine with Manual Transmission).....	Comes on when engine speed greater than 900 RPM and engine vacuum greater than 5" Hg at part throttle.
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Fuel, Oil Pressure, Temperature

Gauges Bench Test.....	10-14 ohms
Auxiliary Fuel Tank Selector Valve Actuation	9.5 volts (min.)

Electrical Systems — Instrument Clusters

ELECTRICAL INSTRUMENT COMPONENTS — CONT'D

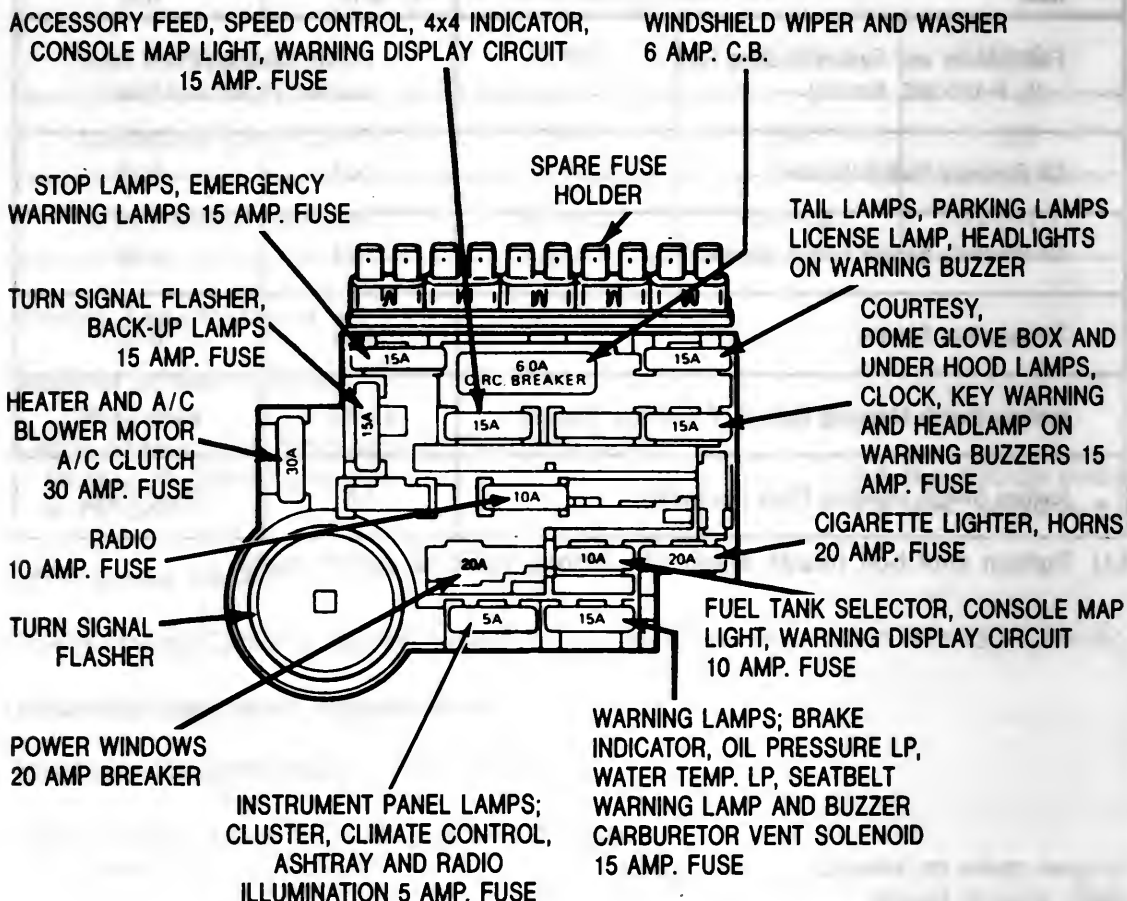
Torque Specifications — All Vehicles

Item	N-m	ft-lb
Fuel Sender and Gasket Locking Ring (E, F-150-350, Bronco)	Rotate Clockwise until tab between Detent and Stop.	
Oil Pressure Switch/Sender	11-24	8-18
Oil Pressure Sender Fitting (Ranger)	11-24	8-18
Temperature Sender	11-24	8-18
Ignition Switch Mounting Nuts (E, F-150-350, Bronco)	4.5-7.3	40-65 (in-lb)
Ignition Switch Mounting Bolts (Ranger)(1)	4-6	35-50 (in-lb)

(1) Tighten until bolt heads shear off. Torque value is approximate.

RANGER

Fuse Panel



Electrical Systems — Circuit Protectors and Relays

CIRCUIT PROTECTION

Circuit	Location	Protective Device(1)
A/C Clutch	Fuse Panel	15 Amp.
Air Conditioner and/or Heater Comb.	Fuse Panel	30 Amp.
Alternator	Starter Motor Relay	16 Gauge Fuse Link
Alternator	Electric Choke	20 Gauge Fuse Link
Aux. Fuel Tank Solenoid	Fuse Panel	10 Amp.
Back-up Lamps and Turn Signals	Fuse Panel	15 Amp.
Cigar Lighter, Horns	Fuse Panel	20 Amp.
Dome, Courtesy, Clock and Glove Box Lamp	Fuse Panel	15 Amp.
Headlamps	Headlamp Switch	18 Amp. C.B.
Heater	Fuse Panel	30 Amp.
Instrument Panel Lamps, Auto. Trans., Floor Shift Illumination	Fuse Panel	5 Amp.
Radio	Fuse Panel	10 Amp.
Stop and Emergency Flasher Lamps	Fuse Panel	20 Amp.
Tail, Parking, License Lamps	Fuse Panel	15 Amp.
Trailer Tow	Starter Relay	16 Gauge Fuse Link
Warning Lamps	Fuse Panel	15 Amp.
Windshield Wiper	Fuse Panel	C.B. 6 Amp.

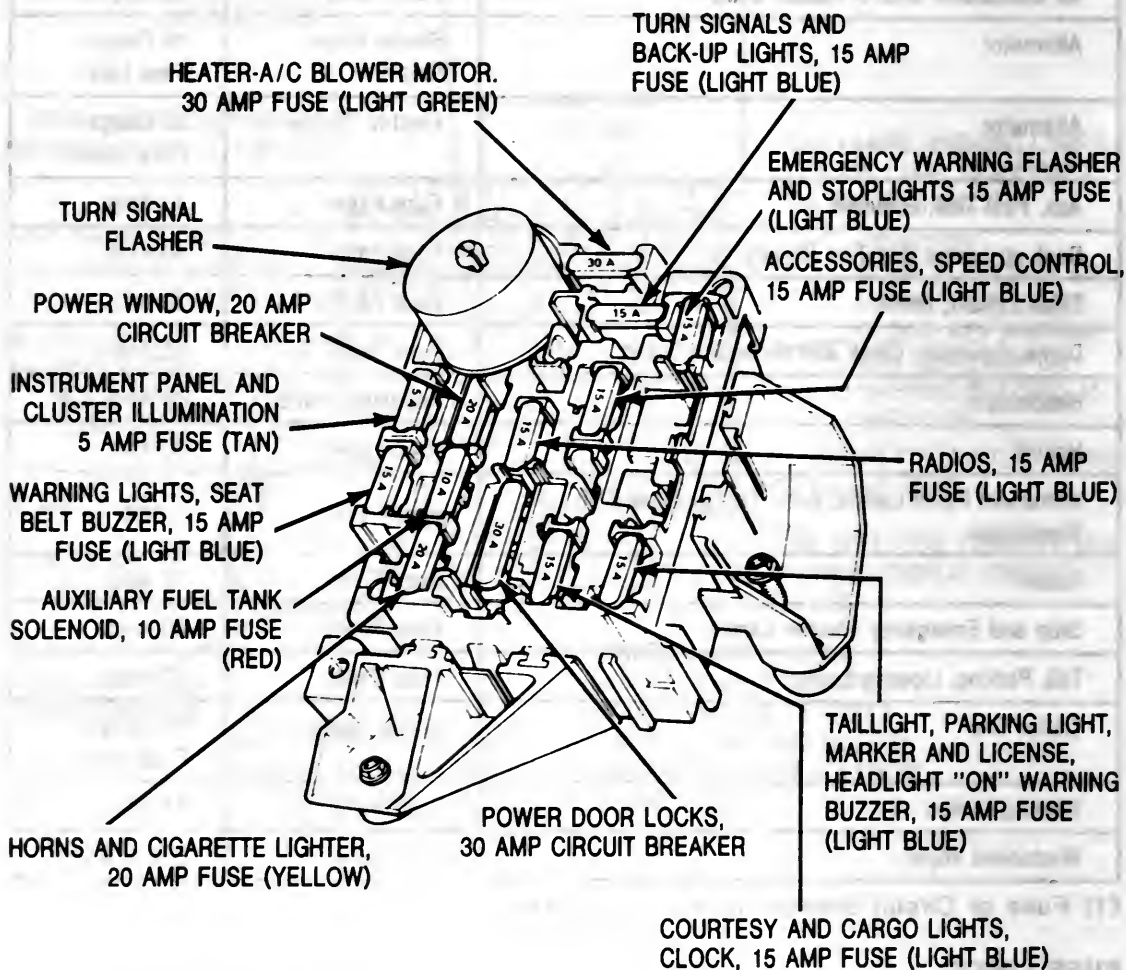
(1) Fuse or Circuit Breaker (C.B.) in Amperes.

FUSE LINKS

Circuit	Location	Type
Headlamps	Integral with Lighting Switch	22 Amp C.B.
Alternator	Starter Motor Relay	16 Ga. Fuse Link
Trailer Lamps	Starter Motor Relay	16 Ga. Fuse Link
Headlamp Switch and Fuse Panel Feed	L.H. Fender Apron Near Voltage Regulator	16 Ga. Fuse Link
Ignition Switch and Fuse Panel Feed	L.H. Fender Apron Near Voltage Regulator	16 Ga. Fuse Link
Trailer Brakes	Starter Motor Relay and Junction Block	16 Ga. Fuse Link

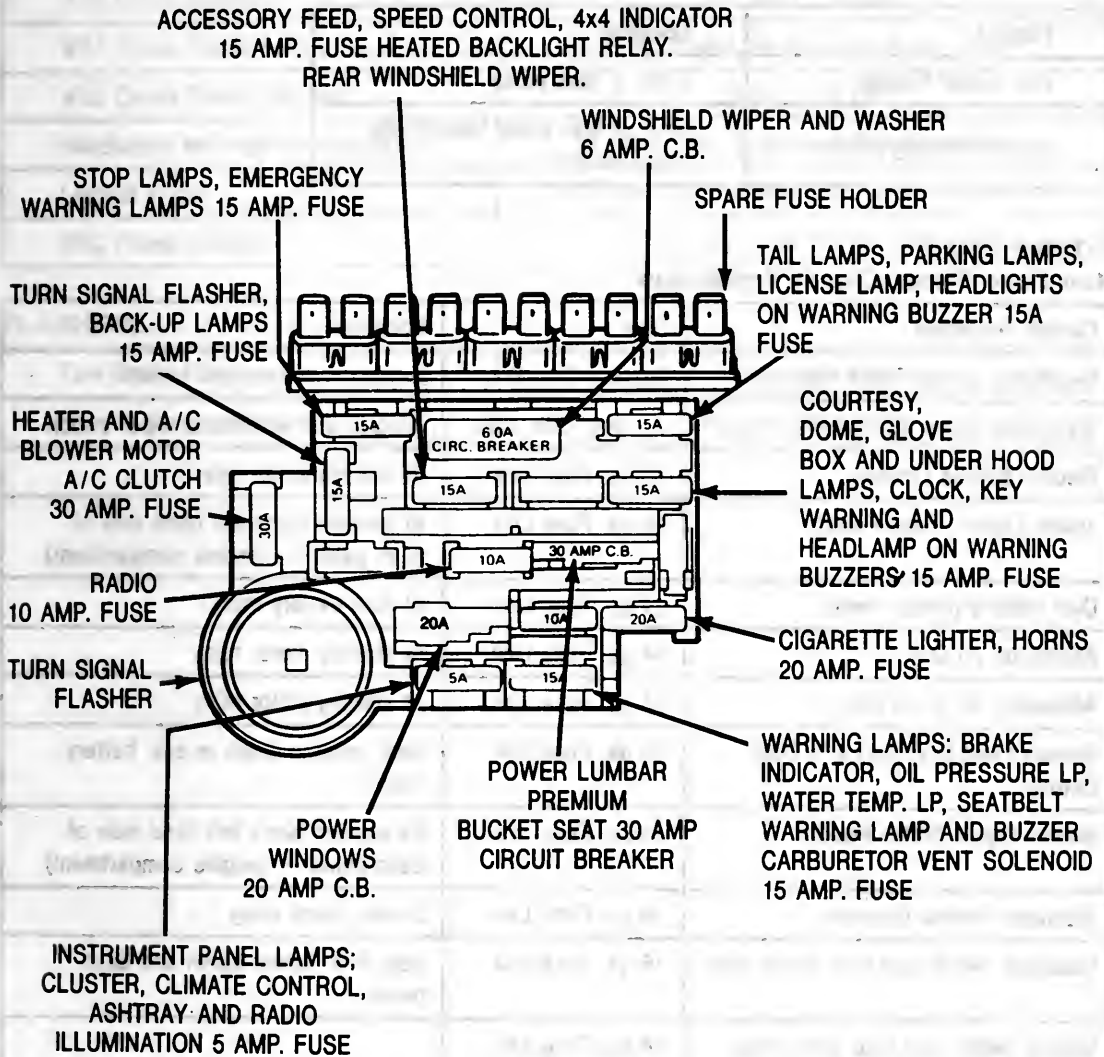
FUSE PANEL

F-150-350



FUSE PANEL

Bronco II



Electrical Systems — Circuit Protectors and Relays

FUSE PANEL — CONT'D

Bronco II

Flasher	Location
Turn Signal Flasher	Front of fuse panel
Hazard Warning Flasher	Rear of fuse panel behind turn signal flasher

F-150-F-350

Non Fuse Panel Circuit Protection

Circuit Protected	Size	Location
Headlights & High Beam Indicator	22 amp Circ. Brkr.	Integral with headlight switch
Windshield Wiper and Washer Pump	7.0 amp Circ. Brkr.	Integral with windshield wiper switch
Electric Brakes (Trailer)	16 ga. Fuse Link	At starting motor relay
Trailer Lights (Relay Feed)	16 ga. Fuse Link	At junction block left hand side of dash panel — (engine compartment)
Dual Battery (Relay Feed)	14 ga. Fuse Link	At dual battery relay
Alternator, 70 amp.	14 ga. Fuse Link	At starting motor relay
Alternator, 40 or 60 amp.	16 ga. Fuse Link	At starting motor relay
Battery Feed (Camper) w/o Dual Battery	16 ga. Fuse Link	Near junction block or aux. battery relay
Marker Lights (Relay Feed)	18 ga. Fuse Link	All junction block left hand side of dash panel — (engine compartment)
Electronic Engine Controls	18 ga. Fuse Link	Starter motor relay
Headlight switch and fuse panel feed	16 ga. Fuse Link	Near R.H. fender apron and dash panel
Ignition switch and fuse panel feed	16 ga. Fuse Link (w/o ammeter) 14 ga. w/ammeter	
Power Window	20 amp C.B.	Fuse Panel
Power Door Locks	30 amp C.B.	Fuse Panel

Electrical Systems — Circuit Protectors and Relays

FUSE LINKS AND CIRCUIT BREAKERS — Bronco II

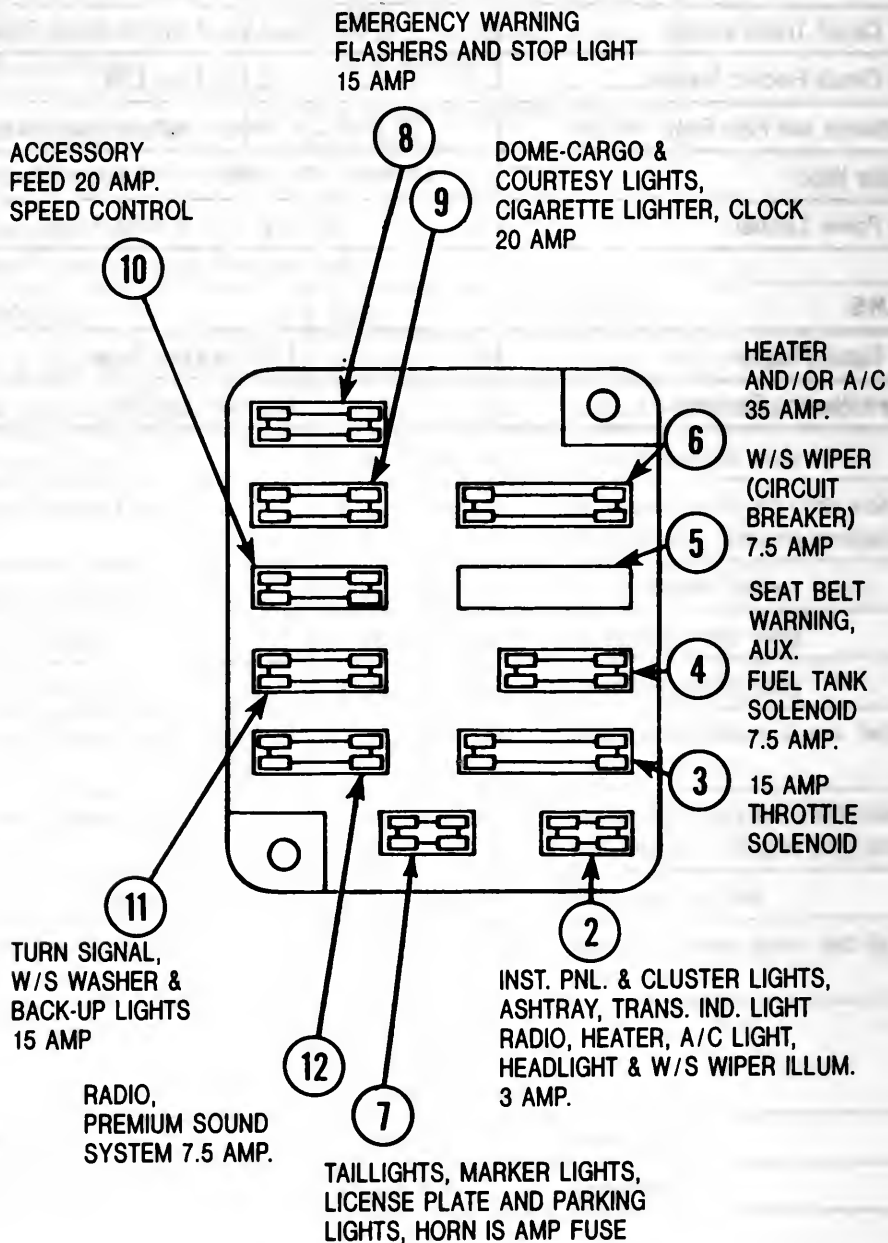
Circuit	Protective Device
#38 Circuit Alternator	16 Ga. Fuse Link
#37 Circuit Trailer Lamps	16 Ga. Fuse Link at Starter Motor Relay
#22 Circuit Electric Brakes	16 Ga. Fuse Link
Headlamps and High Beam Indicator	22 Amp. C.B. Integral with Headlamp Switch
Liftgate Wiper	4.5 Amp. C.B. Located in I.P. Above Glove Box
RPO Power Lumbar	30 Amp. C.B. in Fuse Panel

FLASHERS

Turn Signal Flasher	Front of Fuse Panel
Hazard Warning Flasher	Back of Fuse Panel

FUSE PANEL

E-150-350



Electrical Systems — Circuit Protectors and Relays

NON-FUSE PANEL FUSES, CIRCUIT BREAKERS AND FUSE LINKS

E-150-350

Circuit Protected	Location	Size
Headlights	Integral w/Lighting Switch	22 amp C.B.
Auxiliary Battery	Starter Motor Relay	14 Ga. F. Link
Auxiliary Heater and/or A/C	Junction Block or Aux. Battery Relay	18 Ga. F. Link
Alternator	Starter Motor Relay	16 Ga. F. Link (For 40, 60, 65 amp Alternators)
Alternator	Starter Motor Relay	14 Ga. F. Link (For 70, 100 amp Alternators)
Electric Choke	Choke Wiring Assembly	20 Ga. F. Link
Trailer	Starter Motor Relay and Junction Block	16 Ga. F. Link
Carburetor Circuits (EEC)	Starter Motor Relay	18 Ga. F. Link
Power Door Locks/Windows	Starter Motor Relay	20 amp C.B.
Camper	Junction Block	14 Ga. F. Link
Engine Compartment Light	Starter Motor Relay	20 Ga. F. Link
Headlight Switch Feed	Starter Motor Relay	18 Ga. F. Link
Ignition Switch Feed	Starter Motor Relay	16 Ga. F. Link
Electric Fuel Pump (Vehicles with 7.5L Engine)	Starter Motor Relay	16 Ga. F. Link

Electrical Systems — Circuit Protectors and Relays

FLASHERS

E-150-350 — Cont'd

Flashers	Location
Turn Signal Flasher	Attached to lower reinforcement of instrument panel on L.H. side of steering column.
Hazard Warning Flasher	Taped to main wiring assembly in lower L.H. corner of instrument panel.

Relays

Ranger

Relay	Location
Starter	RH Fender Apron
Trailer Lights	Top of LH Radiator Support

F-150-F-350, Bronco

Relay	Location
Auxiliary Battery	LH Side Dash Panel
Starter	RH Fender Apron
EEC Power	RH Fender Apron
Camper Lights	Attached to Dash Panel
Trailer Lights	Attached to Dash Panel
Fog Lights	Behind LH Side of Instrument Panel
Horn	Mounted on Speed Control Amplifier
Choke	Near RH Front Wheel Well

E-150-E-350

Relay	Location
Auxiliary Battery	LH Front Fender
EEC Power	Attached to Top of RH Fender Apron
Starter	RH Front Fender
Power Door Lock	Lower LH Cowl Near Fuse Block
Power Door Unlock	Lower LH Cowl Near Fuse Block
Horn	Attached to Speed Control Amplifier
Auxiliary Heater — A/C Blower	LH Corner Engine Compartment
Trailer Lights	LH Rear Fender Below LH Taillight

RADIOS

Electrical Specifications

RADIO USED	SPECIFICATION NUMBER
AM	ES-ESAF-19A198-AA
AM/FM MPX	ES-ESAF-19A198-AA
AM/FM MPX TAPE	ES-ESAF-19A198-AA
ELECT. AM/FM/CASS.	ES-ESVF-18B827-AA

All of the above radios must conform to their specific general specifications with the following parameters:

Antenna Pre-Trim95 pf
 Dummy Antenna15 pf series
 Rated Power Output4 Watts per channel into a 3.2 ohm load
 Operating Temperature..... $-29^{\circ}\text{C}(-20.2^{\circ}\text{F})$ to $+60^{\circ}\text{C}(140^{\circ}\text{F})$
 Vibration30 min. @ 5 g's Horizontal Mount

Rated power output of/Elect. stereo 6 watts (front), 12 watts (rear) per channel into a 3.2Ω (front) & 6.0Ω (rear) load.

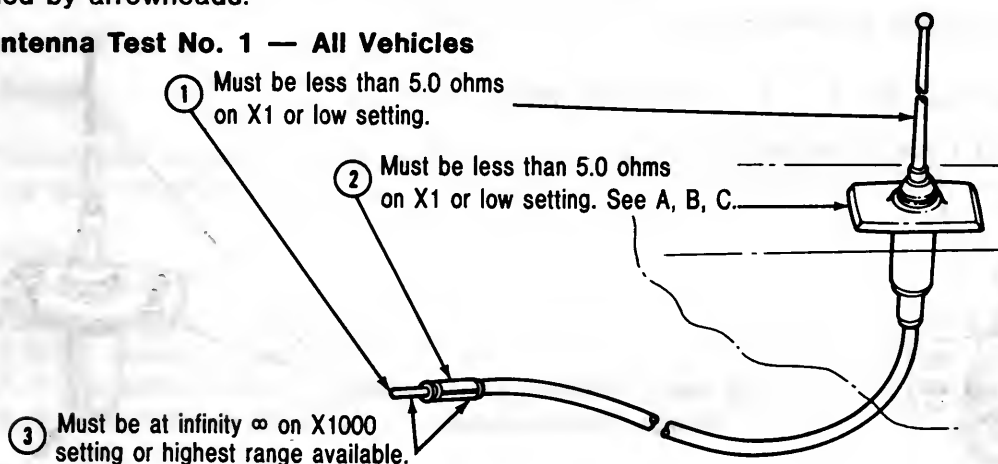
Torque Specifications

Radio Chassis Support Retaining Nut 2.5-4 N-m (22-35 in-lb)
 Radio Side X7Tg Brackets (Mtr) 2.5-4 N-m (22-35 in-lb)

Antennas

With antenna installed on vehicle and cable unplugged from radio, perform the following resistance tests with an ohmmeter. Probes must contact antenna at points specified by arrowheads.

Antenna Test No. 1 — All Vehicles



Results

If ohmmeter tests are satisfactory — the antenna is good.

Action

If any ohmmeter reading is unsatisfactory take the following action:

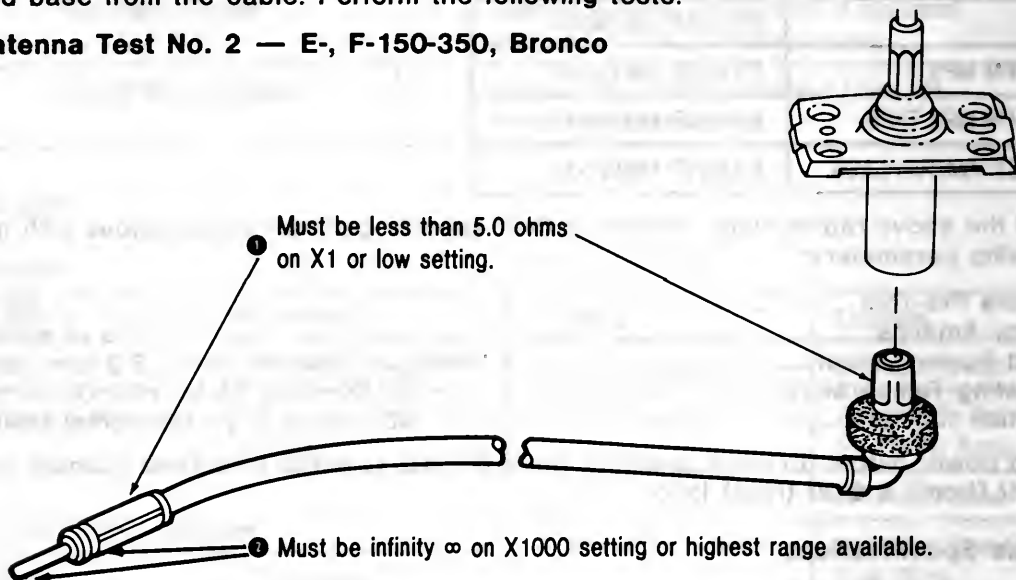
- If one piece assembly, replace the complete antenna and cable assembly.
- If detachable cable and mast, perform antenna test No. 2 and 3.
- If manual antenna with extension cable, perform antenna test No. 4.

ANTENNAS — CONT'D

Testing Antenna Equipped with Detachable Cable and Mast.

When results in Test No. 1 have been unsatisfactory, disconnect the antenna mast and base from the cable. Perform the following tests:

Antenna Test No. 2 — E-, F-150-350, Bronco



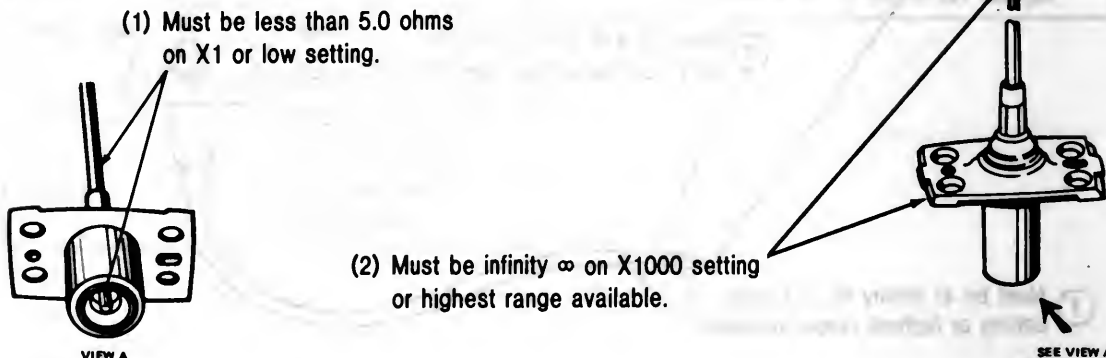
Results

If ohmmeter readings are satisfactory, the cable is good. Perform antenna test no. 3.

Action

If either reading is unsatisfactory, replace the cable.

Antenna Test No. 3 — E-, F-150-350, Bronco



Results

If ohmmeter readings are satisfactory, antenna mast and base are good, replace cable.

Action

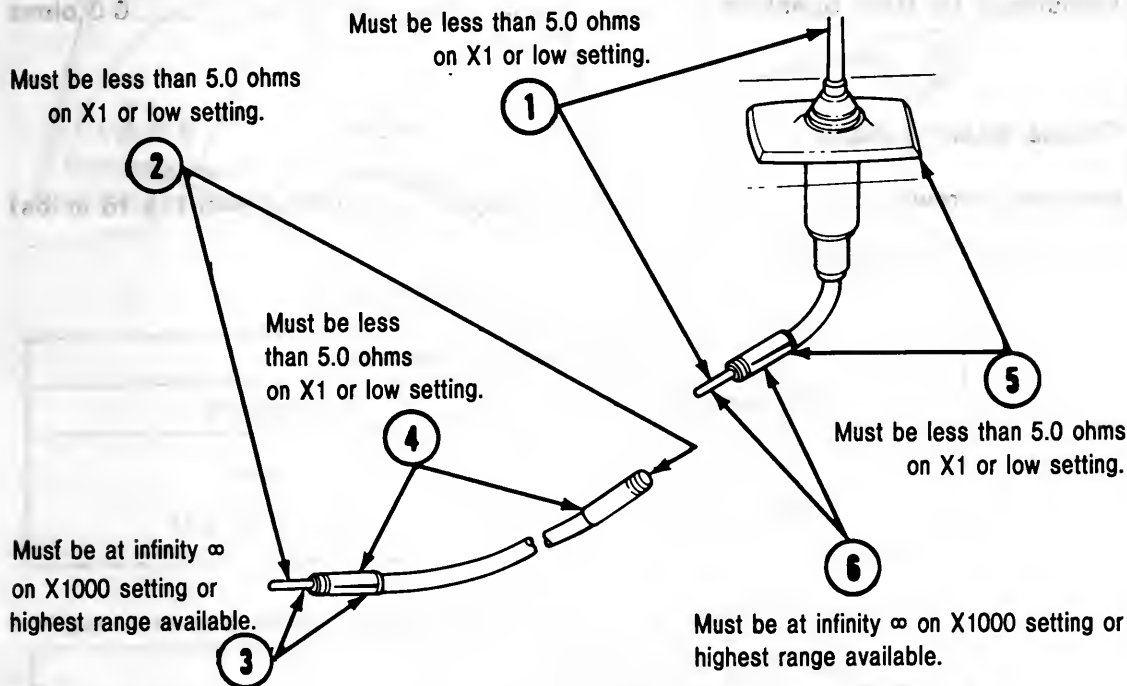
If either reading is unsatisfactory, replace only the base assembly, the mast should be good.

ANTENNAS — CONT'D

Testing Antenna With Extension Cable

When results in test No. 2 have been unsatisfactory, disconnect extension cable from main cable. Perform the following tests:

Antenna Test No. 4 — E-, F-150-350, Bronco



Results

If ohmmeter readings are satisfactory, the extension cable and main antenna cable are good. Perform test No. 3.

Action

- If either reading on extension cable is unsatisfactory, replace extension cable.
- If either reading on main antenna cable is unsatisfactory take the following action:
- If one piece assembly, replace the complete antenna and main cable assembly.
 - If main cable is detachable, perform antenna test No. 2 or 3.

Antenna Specifications

Cable must conform to ES D3AA 18828-AA
Base must conform to ES D3AA 18828-AB

Torque Specifications

Mast.....	3.4-3.6 N-m (2.51-2.66 Ft-lbs)
Screws.....	2.4-5.0 N-m (1.77-3.69 Ft-lbs)

SPEAKERS

Service Specifications

F-150-350, Bronco, Ranger

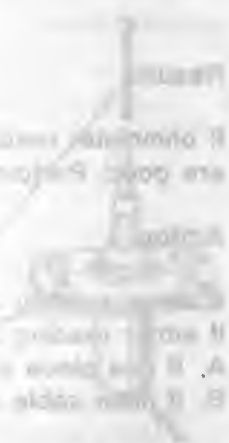
Resistance for Instrument Panel and Door Speakers 3.2 ohms

Bronco

Resistance for Rear Speakers 6.0 ohms

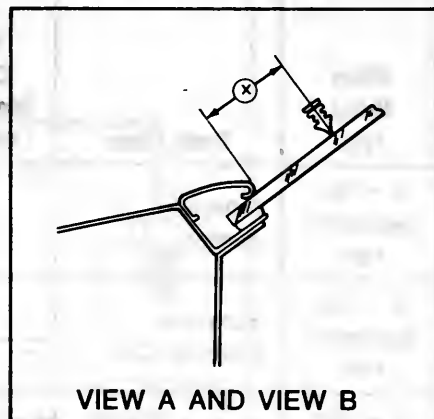
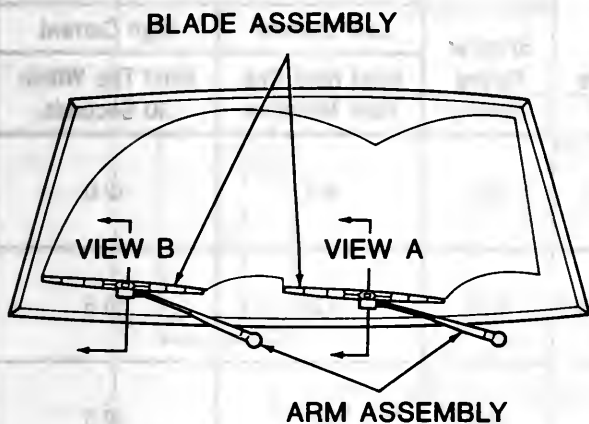
Torque Specifications

Mounting Screws 1.5-1.9 N·m (13-16 in-lbs)



WINDSHIELD WIPERS

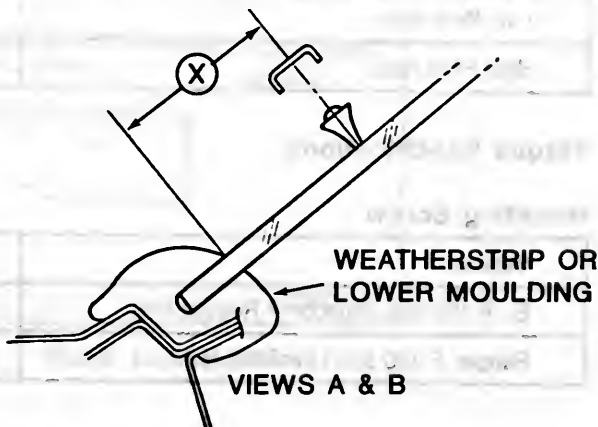
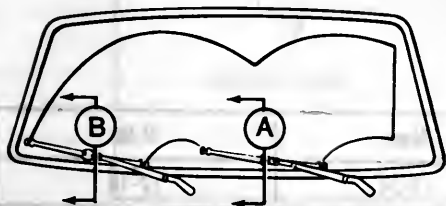
Wiper Arm and Blade Adjustment — Ranger/Bronco II



Dimension "X" mm (inches)	
A Driver's Side	B Passenger Side
50-81 (1-31/32-3-3/16)	55-86 (2-11/64-3-3/8)

Wiper Arm and Blade Adjustment — E-, F-150-350, Bronco

Vehicle	View	Dimension X in mm (inches)	
		A Driver's Side	Passenger Side B
E-150 — E-350	1	70-107 (2.75-4.25)	83-120 (3.25-4.75)
F-Series, Bronco	1	62-93 (2.40-3.70)	62-93 (2.40-3.70)



WINDSHIELD WIPERS — CONT'D

Windshield Wiper Motor and Switch Test Current Limits

Wiper Motor Type	Truck Lines	Motor Current (Max. Amps No Load)	Breaker Rating (Amps)	Breaker Test Amperes**	
				Low Current	High Current
				Must Hold One Hour Minimum	Must Trip Within 30 Seconds
A — Non Depressed Park	Bronco II Ranger	2.5*	6.0	6.0	12.0
B — Non Depressed Park	Econoline Louisville Cab	3.5*	8.25	8.25	16.5
C — Non Depressed Park	Lt. & Med. Truck, Bronco	2.5*	6.0	6.0	12.0
Rear	Bronco II	1.5	4.5	4.5	9.0

*High speed

**At 75 ± 5°F ambient temperature

Torque Specifications

Item	N-m	in-lb
Wiper Motor Attaching Screws Ranger, Bronco II	6.8-9.6	60-85
E-, F-150-350, Bronco	6.8-9.6	60-85
Pivot Shaft Nuts	9.9-12.5	88-110

Horns

Electrical Specifications

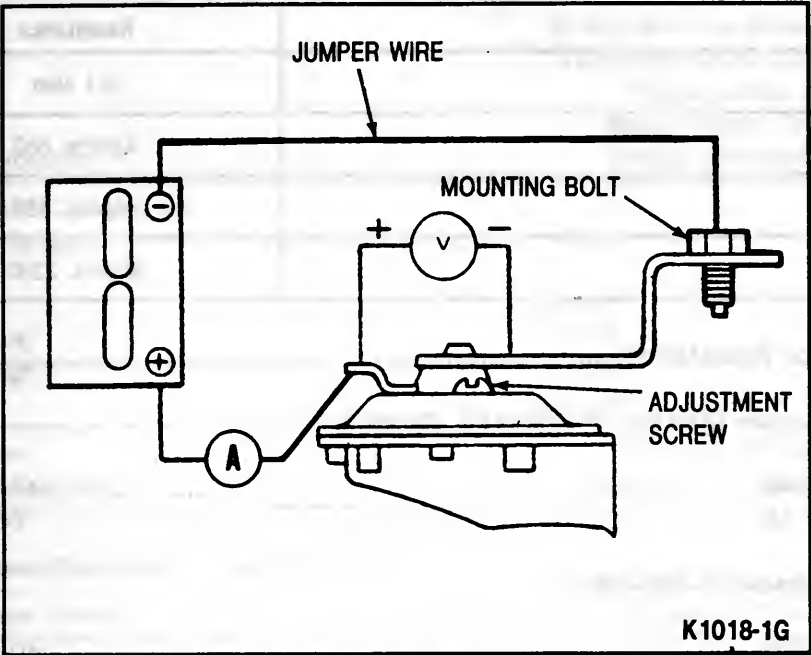
Item	Current Draw (Amps)	Frequency (Hz)
Low Pitch Horn	4.2-6.2	340-370
High Pitch Horn	4.5-6.5	430-460

Torque Specifications

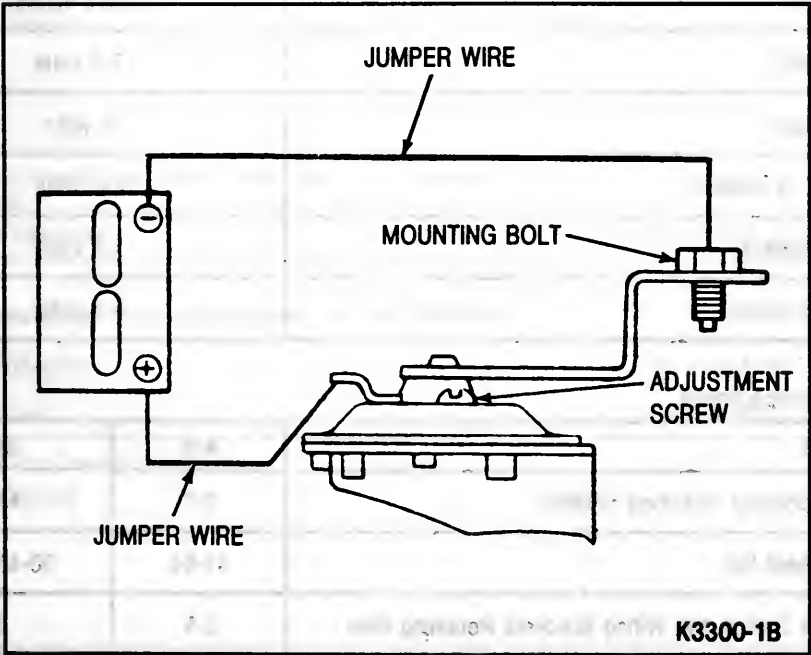
Mounting Screw

Vehicle	N-m	ft-lb
E-, F-150-350, Bronco — Regular Horn	17-24	12-18
Ranger, F-150-350 Low Pitch Horn	10-12	7.5-9

HORN CURRENT DRAW TEST



Horn Current Test — With Test Equipment



Horn Current Draw Test — Without Test Equipment

SPEED CONTROL SYSTEM

Control Switches Resistance

Switch	Resistance
OFF	0-1 ohm
SET/ACCEL	Approx. 680
COAST	Approx. 120
RESUME	Approx. 2200

Speed Sensor Resistance..... 40 ohms

Servo Resistance (Ranger, F-150-350, Bronco)

Circuits 144-145..... 40-125 ohms

Circuits 144-146..... 60-90 ohms

Servo Resistance (E-150-350)

Circuits 734-825..... 40-125 ohms

Circuits 734-826..... 60-190 ohms

Circuit Voltage

Switch	Voltage
ON (pressed)	battery voltage
ON (released)	7.8 volts
OFF (pressed)	0 volts
SET/ACCEL (pressed)	4-5 volts
COAST (pressed)	1.5 volts
RESUME (pressed)	6.5 volts

Torque Specifications

Description	N-m	in-lb
Servo and Bracket Attaching Screws	5-7	43-61
Steering Wheel Nut	41-54	30-40 (ft-lb)
(1) Amplifier Switch and Wiring Brackets Retaining Nuts	2.5	22

Climate Control Systems — Heater Only

SERVICE SPECIFICATIONS

Heater Electrical Specifications — Ranger/Bronco II

System Protection	30 Amp Mini-Fuse (Brown-Orange) 15 Amp Mini-Fuse in Clutch Circuit Thermal Limiter in Blower Resistor Circuit (Integral with Resistor)	
Blower Motor Current Draw		
Switch Setting	Amps	Volts
Off	0	0
Low	3.0-5.0	5.1
Med. Low	5.0-7.0	7.6
Med. High	8.5-10.0	10.4
High	11.5-13.0	13.4
Illumination	One 1 CP-161 Bulb	
Control Assembly	One 75 C.P. — 1982 Bulb	

Torque Specifications — All Vehicles

Heater Hose Clamps	1.8-2.5 N-m (16-22 In-Lbs)
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Heater Electrical Specifications — F-150-350, Bronco

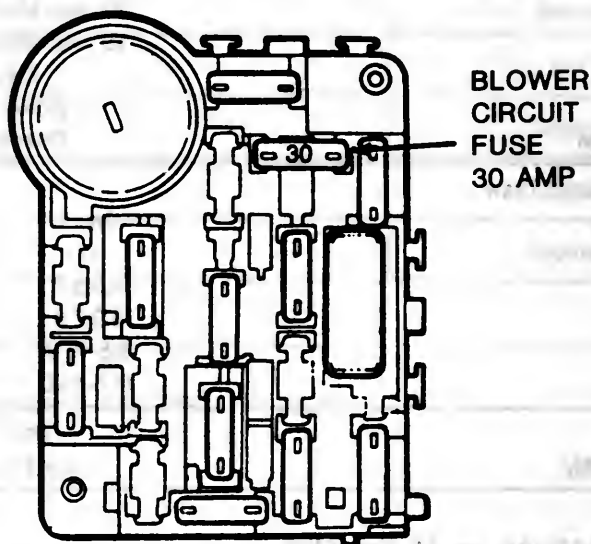
System Protection	30 Amp Mini-Fuse (Light Green)	
Blower Circuit	in Panel	
Blower Motor Current Draw		
Switch Setting	Amps	Volts
Off	0	0
Low	5	5
Medium	7	6
High	11	9
Illumination	One 1CP-161 Bulb	
Control Assembly		

Heater Electrical Specifications — E-150-350

System Protection	35 Amp Fuse	
Blower Circuit	in Fuse Panel F-6	
Blower Motor Current Draw		
Switch Setting	Amps	Volts
Off	—	—
Low	3	7
Medium	4	9
High	8	13.5
Illumination	One 1CP-161 Bulb	
Control Assembly		

Climate Control Systems — Heater Only

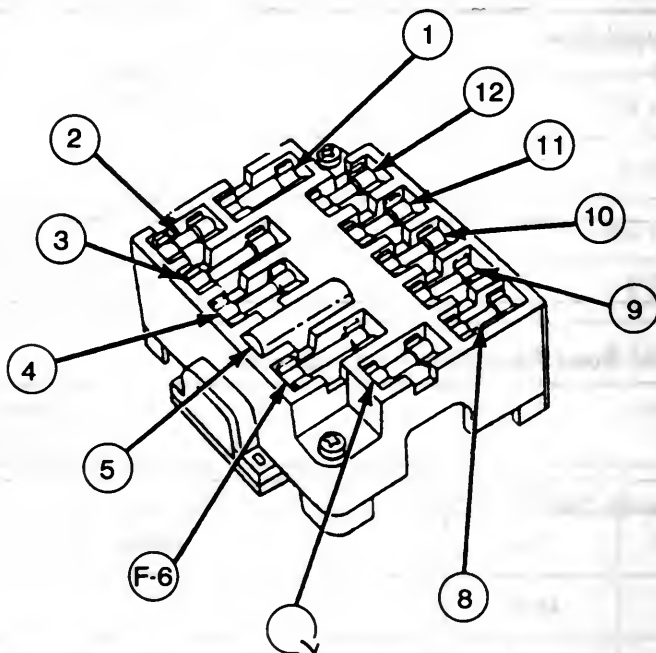
F-150 — F-350 and Bronco



The fuse panel is located on the dash panel in passenger compartment left of steering column.

CL3513-2B

E-150 — E-350



The fuse panel is located on the dash panel in passenger compartment left of the steering column.

CL3400-2B

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS

Refrigerant System Specifications — Ranger

Refrigerant System Control Pressure Switch (Clutch Cycling)	Close Maximum 52 psi Open Minimum 23 psi
High Pressure Relief Valve (Located on Compressor Discharge Manifold)	Opens 3103kPa (450 psi)
Capacity	2-1/2 Lbs. Plus 1/4 Lb. Minus 0 40 Oz. Plus 4 Oz. Minus 0 1.13 Kg. Plus .11 Kg. Minus 0
Type Refrigerant 12 (R-12) ESA-M17B2A	Dichlorodifluoromethane CCL ₂ F ₂ Ford D4AZ-19B519-A Motorcraft YN1-A 14 Oz. Can YN-7 30 Lb. Container

Refrigerant System Specifications — F-150-350, Bronco

Refrigerant System Control Pressure Switch (Clutch Cycling)	Close Maximum 52 psi Open Minimum 23 psi
High Pressure Relief Valve (Located on Compressor Discharge Manifold)	Opens 3103kPa (450 psi)
Capacity	3 Lbs. Plus 1/4 Lb. Minus 0 48 Oz. Plus 4 Oz. Minus 0 1.36 Kg. Plus .11 Kg. Minus 0
Type Refrigerant 12 (R-12) ESA-M17B2-A	Dichlorodifluoromethane CCL ₂ F ₂ Ford D4AZ-19B519-A Motorcraft YN-1A 14 Oz. Can YN-7 30 Lb. Container

Refrigerant System Specifications — E-150-350

Cycling Clutch Control De-icing Switch	Close 42°F Open 28°F
System Protection High Pressure Relief Valve (Located on Compressor Discharge Manifold)	Opens 3103kPa (450 psi)
Capacity (Front System Only)	3-1/4 Lbs. Plus 1/4 Lb. Minus 0 52 Oz. Plus 4 Oz. Minus 0 1.47 Kg. Plus .113 Kg. Minus 0
(Front and Auxiliary System)	4 Lbs. Plus 1/4 Lb. Minus 0 64 Oz. Plus 4 Oz. Minus 0 1.81 Kg. Plus .113 Kg. Minus 0
Type Refrigerant 12 (R-12) ESA-M17B2A	Dichlorodifluoromethane CCL ₂ F ₂ Ford D4AZ-19B519-A Motorcraft YN-1A 14 Oz. Can YN-7 30 Lb. Container

Climate Control Systems — A/C, Heater

SYSTEM COMPONENTS

Vehicle	Compressor (FS-6)	Nip- pondenso 6E171	Receiver Dehydrator	Suction Accum- lator/ Drier	Expansion Valve	Fixed Orifice Tube	Clutch Cycling Pressure Switch	Thermo- static Switch	Evaporator Core		Service Access Gauge Part Valves
									(1)	(2)	
Ranger/ Bronco II	X			X		X	X			X	X
F-150-350, Bronco	X			X		X	X			X	X
E-150-350	X	X	X		X			X	X		X

(1) Fin and Tube.

(2) "Flooded Type" Plate/Fin.

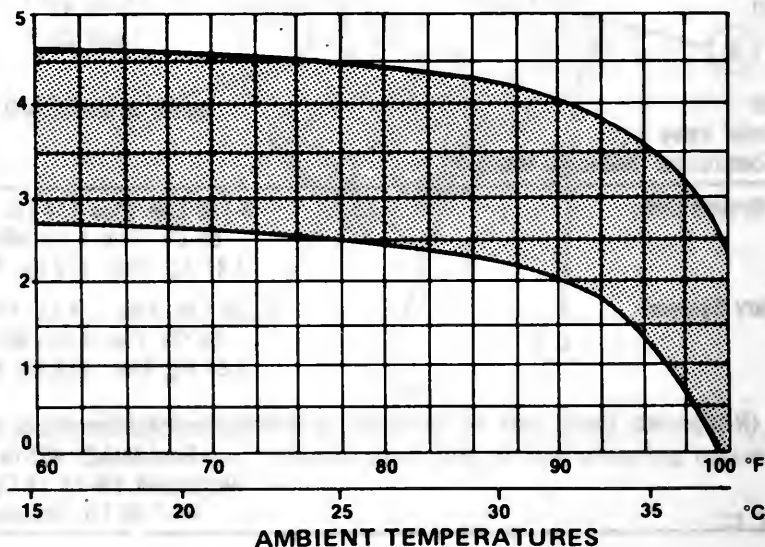
Service Specifications

Cycling Clutch Pressure/Temperature Operating Specifications — F-150-350, Bronco, Ranger, Bronco II

These conditional requirements for the fixed orifice tube cycling clutch system tests must be satisfied to obtain accurate pressure readings

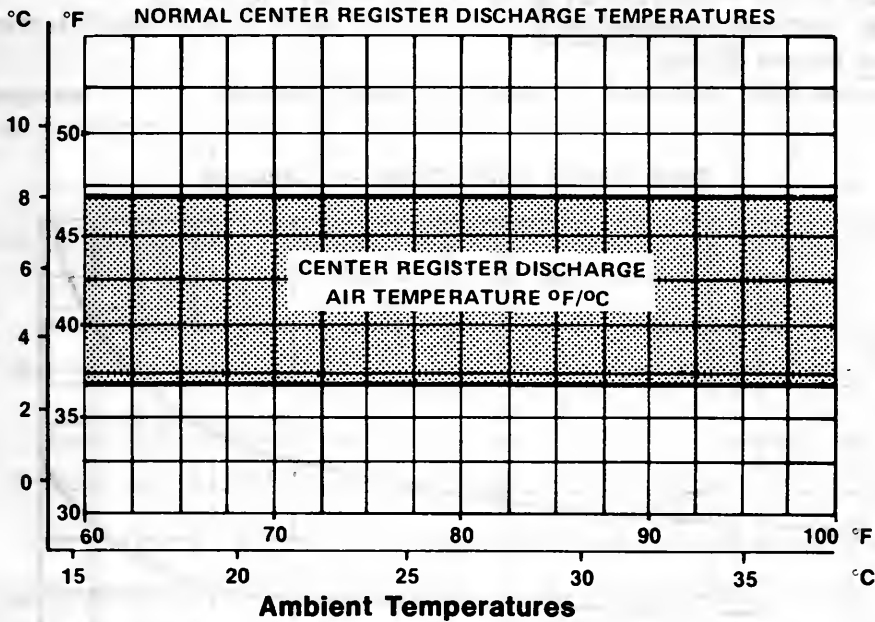
- Stabilized Pressures
- Stabilized in Vehicle Temperatures @ 70° to 80°F (21° to 27°C)
- Maximum A/C (Recirculating Air)
- Maximum Blower Speed
- 1500 Engine RPM

NORMAL CLUTCH CYCLE RATE PER MINUTE
CYCLES/MINUTE

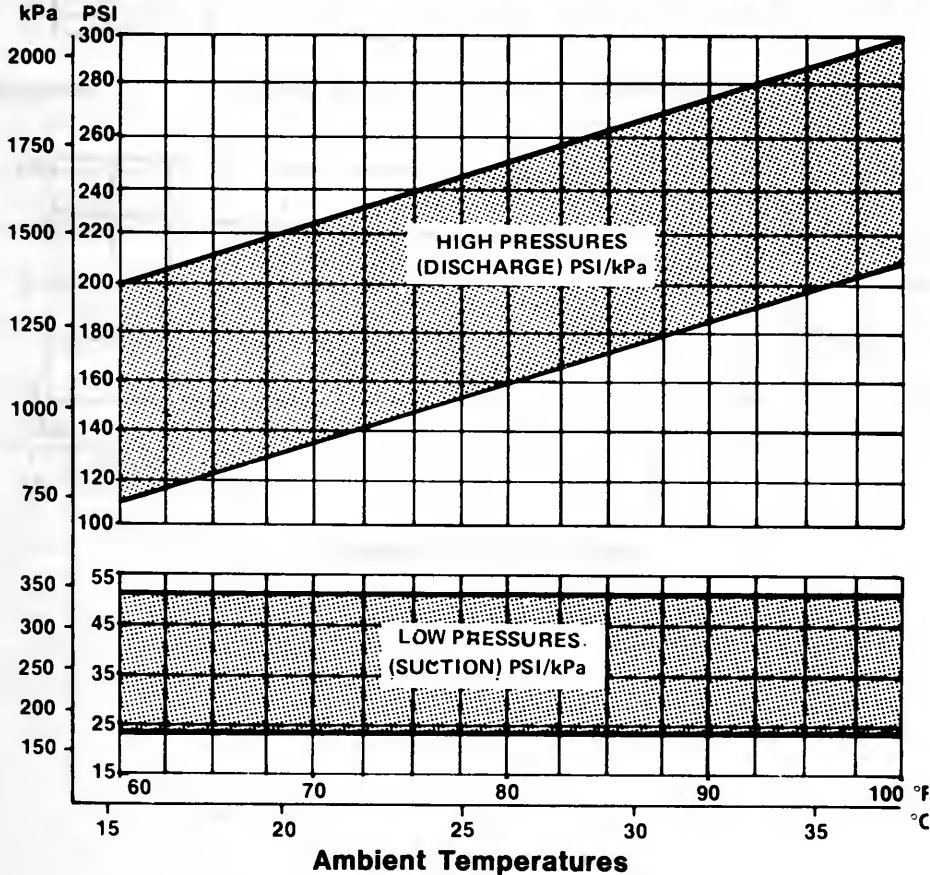


SERVICE SPECIFICATIONS — CONT'D

Cycling Clutch Pressure/Temperature Operating Specifications —
F-150-350, Bronco, Ranger, Bronco II— Cont'd



Normal Fixed Orifice Tube Cycling Clutch Refrigerant System Pressures



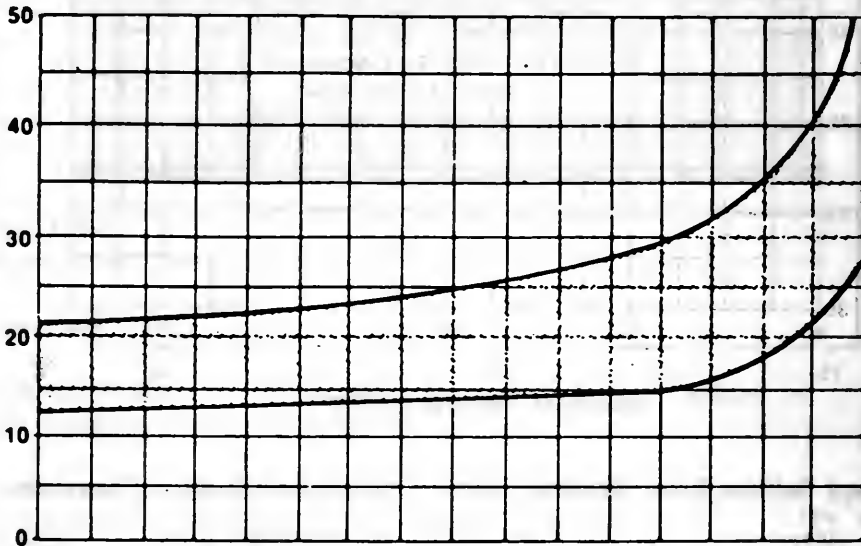
Climate Control Systems — A/C, Heater

**THESE CONDITIONAL REQUIREMENTS FOR THE FIXED ORIFICE
TUBE CYCLING CLUTCH SYSTEM TESTS MUST BE SATISFIED
TO OBTAIN ACCURATE CLUTCH CYCLE TIMING**

- Stabilized Pressures
- Stabilized in Car Temperatures @ 70° to 80°F (21° to 27°C)
- Maximum A/C (Recirculating Air)
- Maximum Blower Speed
- 1500 Engine RPM

Seconds

Total Clutch Cycle Time — Seconds

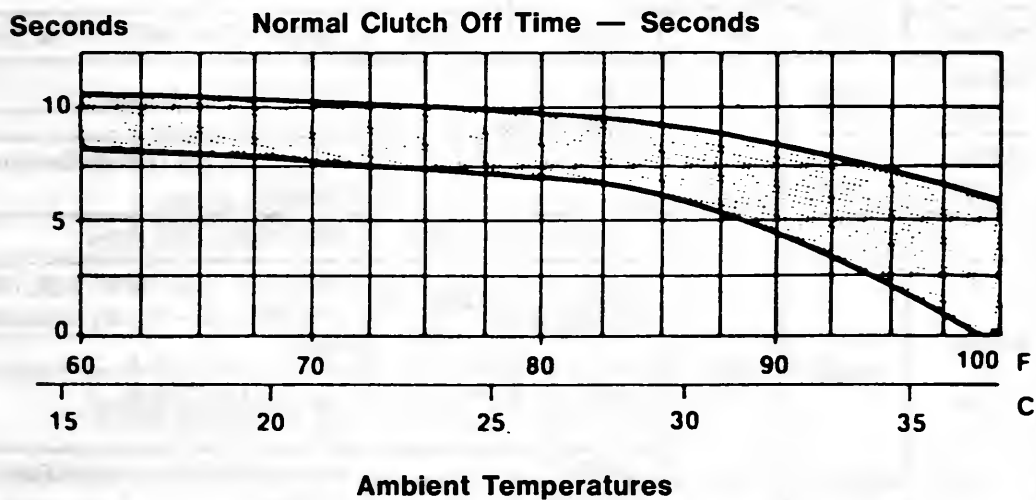
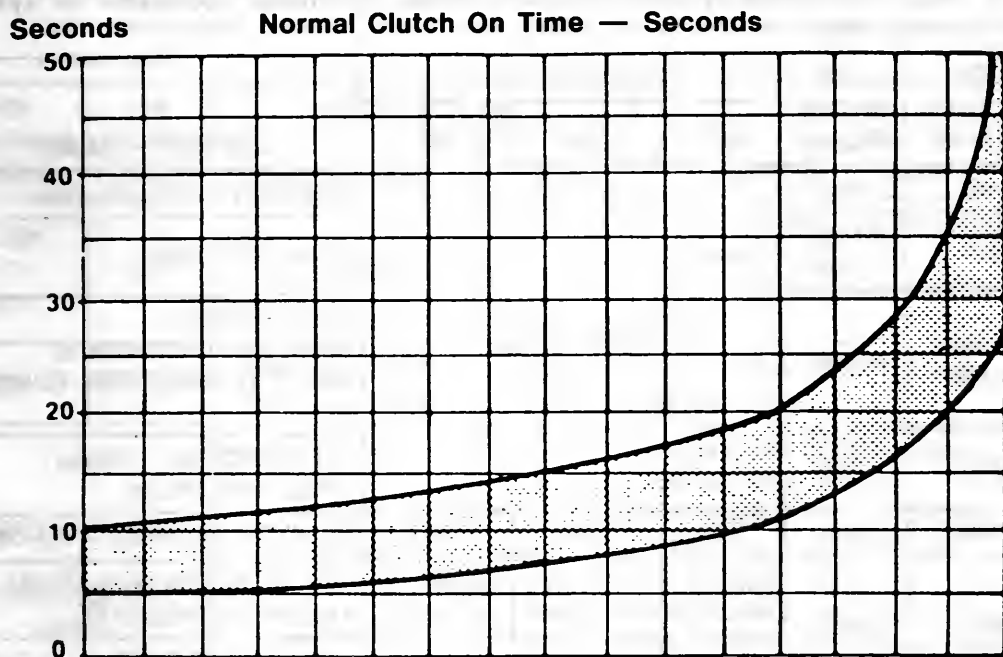


Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

Cycling Clutch Timing Rates — Ranger, F-150-350, Bronco, Bronco II

Normal Fixed Orifice Tube Cycling Clutch Refrigerant System Pressures



Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

Refrigerant System Pressure and Clutch Cycle Timing Evaluation Chart for Fixed Orifice Tube Cycling Clutch Systems — Ranger, F-150-350, Bronco, Bronco II

NOTE: Normal system conditional requirements must be maintained to properly evaluate refrigerant system pressures. Refer to charts applicable to system under test.

HIGH (DISCHARGE) PRESSURE	LOW (SUCTION) PRESSURE	CLUTCH CYCLE TIME			COMPONENT — CAUSES
		RATE	ON	OFF	
HIGH	HIGH	CONTINUOUS RUN			CONDENSER — Inadequate Airflow
HIGH	NORMAL TO HIGH				ENGINE OVERHEATING
NORMAL TO HIGH	NORMAL				AIR IN REFRIGERANT REFRIGERANT OVERCHARGE (a) HUMIDITY OR AMBIENT TEMP. VERY HIGH (b)
NORMAL	HIGH				FIXED ORIFICE TUBE — Missing O-Rings Leaking/Missing
NORMAL	HIGH	SLOW	LONG	LONG	CLUTCH CYCLING SWITCH — High Cut-In
NORMAL	NORMAL	SLOW OR NO CYCLE	LONG OR CONTINUOUS	NORMAL OR NO CYCLE	MOISTURE IN REFRIGERANT SYSTEM. EXCESSIVE REFRIGERANT OIL
		FAST	SHORT	SHORT	CLUTCH CYCLING SWITCH — Low Cut-In or High Cut-Out
NORMAL	LOW	SLOW	LONG	LONG	CLUTCH CYCLING SWITCH — Low Cut-Out
NORMAL TO LOW	HIGH	CONTINUOUS RUN			Compressor - Low Pressure
NORMAL TO LOW	NORMAL TO HIGH				A/C SUCTION LINE - Partially Restricted or Plugged (c)
NORMAL TO LOW	NORMAL	FAST	SHORT	NORMAL	EVAPORATOR — Low Airflow
			SHORT TO VERY SHORT	NORMAL TO LONG	CONDENSER, FIXED ORIFICE TUBE, OR A/C LIQUID LINE — Partially Restricted or Plugged
			SHORT TO VERY SHORT	SHORT TO VERY SHORT	LOW REFRIGERANT CHARGE
			SHORT TO VERY SHORT	LONG	EVAPORATOR CORE — Partially Restricted or Plugged

(a) Compressor may make noise on initial run. This is slugging condition caused by excessive liquid refrigerant.

(b) Compressor clutch may not cycle in ambient temperatures above 80°F depending on humidity conditions.

(c) Low pressure reading will be normal to high if pressure is taken at accumulator and if restriction is downstream of service access valve.

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

Refrigerant System Pressure and Clutch Cycle Timing Evaluation Chart for Fixed Orifice Tube Cycling Clutch Systems — Ranger, F-150-350, Bronco, Bronco II — Cont'd

NOTE: Normal system conditional requirements must be maintained to properly evaluate refrigerant system pressures. Refer to charts applicable to system under test.

HIGH (DISCHARGE) PRESSURE	LOW (SUCTION) PRESSURE	CLUTCH CYCLE TIME			COMPONENT — CAUSES
		RATE	ON	OFF	
NORMAL TO LOW	LOW	CONTINUOUS RUN			A/C SUCTION LINE — Partially Restricted or Plugged (d) CLUTCH CYCLING SWITCH — Sticking Closed
LOW	NORMAL	VERY FAST	VERY SHORT	VERY SHORT	CLUTCH CYCLING SWITCH — Cycling Range Too Close
ERRATIC OPERATION OR COMPRESSOR NOT RUNNING		—	—	—	CLUTCH CYCLING SWITCH — Dirty Contacts or Sticking Open. POOR CONNECTION AT A/C CLUTCH CONNECTOR OR CLUTCH CYCLING SWITCH CONNECTOR. A/C ELECTRICAL CIRCUIT ERRATIC — See A/C Electrical Circuit Wiring Diagram A/C PUSH BUTTON SWITCH — Not Depressed, Dirty Contacts or Open Circuit
ADDITIONAL POSSIBLE CAUSE COMPONENTS ASSOCIATED WITH INADEQUATE COMPRESSOR OPERATION					
<ul style="list-style-type: none"> ● COMPRESSOR CLUTCH Slipping ● LOOSE DRIVE BELT ● CLUTCH COIL Open — Shorted, or Loose Mounting ● CONTROL ASSEMBLY SWITCH — Dirty Contacts or Sticking Open ● CLUTCH WIRING CIRCUIT — High Resistance, Open or Blown Fuse 					
ADDITIONAL POSSIBLE CAUSE COMPONENTS ASSOCIATED WITH A DAMAGED COMPRESSOR					
<ul style="list-style-type: none"> ● CLUTCH CYCLING SWITCH — Sticking Closed or Compressor Clutch Seized ● SUCTION ACCUMULATOR DRIER — Refrigerant Oil Bleed Hole Plugged ● REFRIGERANT LEAKS 					
(d) Low pressure reading will be low if pressure is taken near the compressor and restriction is upstream of service access valve.					

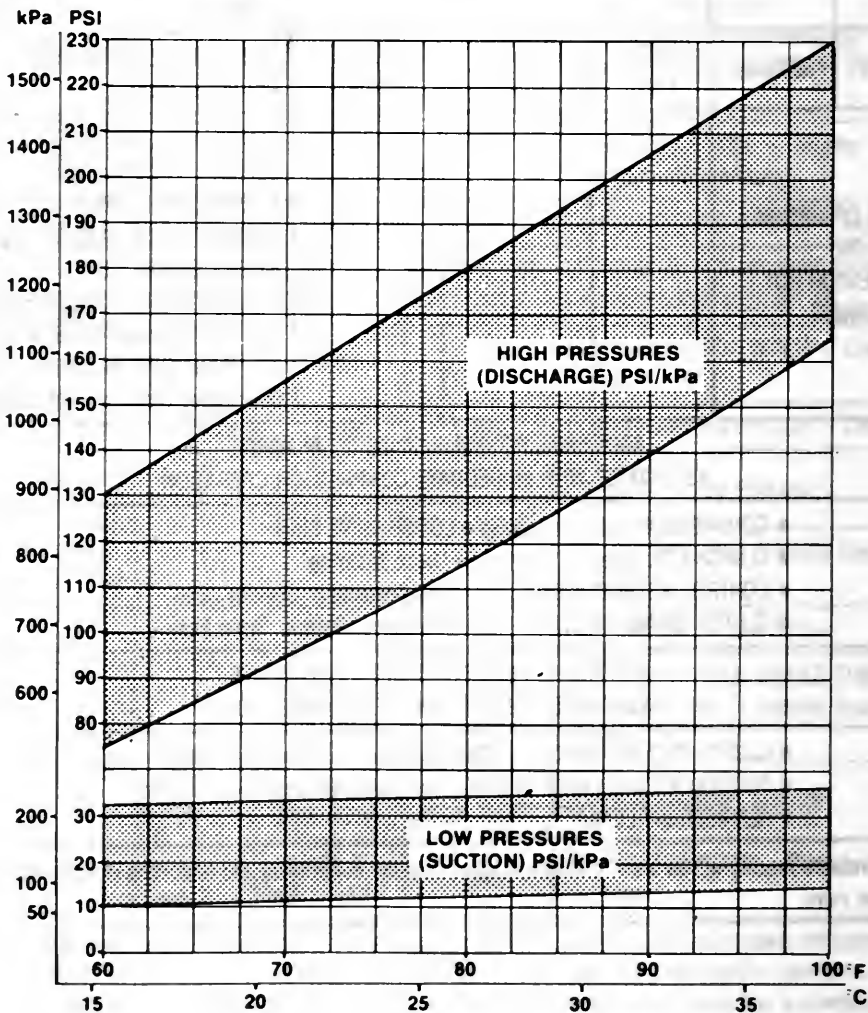
SERVICE SPECIFICATIONS — CONT'D

Cycling Clutch Pressure/Temperature Operating Specifications — E-150-350

These Conditional Requirements for the
Cycling Clutch System Tests Must Be Satisfied to
Obtain Accurate Pressure Readings

- Stabilized Pressures
- Stabilized in Car Temperatures @ 70° to 80°F (21° to 27°C)
- Maximum A/C (Recirculating Air)
- Maximum Blower Speed
- 1500 Engine RPM
- Compressor Clutch Engaged

Normal Cycling Clutch Refrigerant System Pressures

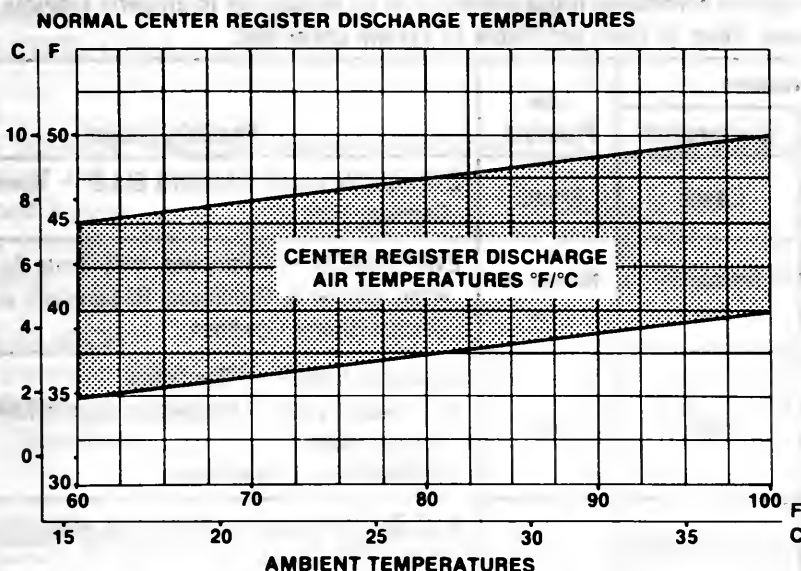


Ambient Temperatures

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS

Clutch Cycling Pressure/Temperature Operating Specifications — E-150-350 — Cont'd



Refrigerant System Pressure Evaluation Chart for De-Icing Switch Cycling Clutch Systems — E-150-350

NOTE: Normal system conditional requirements must be maintained to properly evaluate refrigerant system pressures. Refer to chart applicable to system under test.

High Pressure		Low Pressure	Possible Causes
*Liquid Line	*Compressor		
High	High	High	ENGINE OVERHEATING EXPANSION VALVE SENSING BULB — Poor Contact. Inadequate Insulation. HEATER WATER VALVE — Insufficient Closure. EVAPORATOR — Too Much Heat, Observe Conditional Requirements. EXPANSION VALVE — Sticking Open.
High	High	Normal to High	AIR IN REFRIGERANT SYSTEM
High	High	Normal	REFRIGERANT — Overcharge
High	High	Low	COMPRESSOR-TO-CONDENSER A/C LINE — Restriction; After Service Access Valve.
Normal to High	Normal to High	High	CONDENSER — Inadequate Air Flow (Bent Fins, Debris, Loose Radiator Fan Belt, Slipping Fan Clutch)
Normal to High	Normal to High	Normal to High	HUMIDITY WELL ABOVE NORMAL EXCESSIVE REFRIGERANT OIL
Normal to Erratic	Normal to Erratic	Normal to Erratic	MOISTURE IN REFRIGERANT SYSTEM — Affects Expansion Valve Function.

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

Refrigerant System Pressure Evaluation Chart for De-Icing Switch Cycling Clutch Systems — E-150-350 — Cont'd

NOTE: Normal system conditional requirements must be maintained to properly evaluate refrigerant system pressures. Refer to chart applicable to system under test.

High Pressure		Low Pressure	Possible Causes
*Liquid Line	*Compressor		
Erratic	Erratic	Erratic	EXPANSION VALVE SENSING BULB — Kinked Capillary Tube
Normal to Low	Normal to Low	Normal to Low	EVAPORATOR — Restriction, Inadequate Air Flow — Reset Blower to Conditional Requirement and/or Confirm Blower Condition
Low	High	Low	RECEIVER/DRIER — Restriction A/C LIQUID LINE — Restriction; Before Service Access Valve CONDENSER — Restriction
Low	Low	High	A/C SUCTION LINE — Restriction; After Service Access Valve SUCTION ACCUMULATOR — Restriction; After Service Access Valve COMPRESSOR — Damaged Valves — (Inadequate compression)
Low	Low	Low	A/C SUCTION LINE — Restriction; Before Service Access Valve SUCTION ACCUMULATOR — Restriction; Before Service Access Valve EVAPORATOR — Iced-up/CONDENSER — Plugged RECEIVER/DRIER — Plugged A/C LIQUID LINE — Restriction; After Service Access Valve EXPANSION VALVE SENSING BULB — Perforated Bulb/EXPANSION VALVE — Sticking Closed REFRIGERANT LEAK AND/OR UNDERCHARGE COMPRESSOR-TO-CONDENSER A/C LINE — Restriction; Before Service Access Valve DE-ICING SWITCH — Sticking closed/ COMPRESSOR CLUTCH — Seized

Additional Possible Cause Components Associated With Inadequate Compressor Operation

COMPRESSOR CLUTCH — Slipping/COMPRESSOR DRIVE BELT — Loose
CLUTCH COIL — Shorted coils; Slipping/CLUTCH COIL — Open Circuit/Blown Clutch Circuit Fuse
DE-ICING SWITCH — Sticking Open/Improper Clutch Circuit Contact in Control Assembly Switch

Additional Possible Cause Components Associated With a Non-Functional Compressor

DE-ICING SWITCH — Sticking Closed/COMPRESSOR CLUTCH — Seized/REFRIGERANT LEAK

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

FS-6 Compressor — All Vehicles

TYPE — Swash Plate — Three double acting pistons — Axial Type

DISPLACEMENT..... 10.4 CID

CYLINDER BORE (DIA.) 1.4 inch

STROKE..... 1.2 inch

ROTATION..... Clockwise

ROTATION TORQUE (Maximum-Manifold Removed)..... 10 N·m — 7 ft.-lbs.

REFRIGERANT OIL

Type (Ford Spec)ESA-M2C31-A — 500 Viscosity

Capacity (New)..... 10 Fluid Ounces

Part Number.....C9AZ-19577-B Motorcraft YN2

MAGNETIC CLUTCH

Air Gap Between Pulley and Hub 0.021-0.036 inch

Current Draw..... 4.67 Amps @ 12.8 volts

Run-Out (Maximum)..... 0.02 inch — Radial or Axial

A/C — Heater System Electrical Specifications — Ranger, Bronco II

Protective Device	30 Amp. Fuse in Blower Circuit Brown — Orange 15 Amp. Fuse in Clutch Circuit White — Purple Thermal Limiter in Blower Resistor Circuit (Integral with Resistor)		
Control Assembly Illumination A/C Push Button	One — 1 C.P. — 161 Bulb One #8605 Bulb Part No. E3TZ-13466-B		
Blower Motor Current Draw and Voltage Drop (Amps and Voltage)	Blower Speed*	Amps	Volts
	Off	—	—
	Low	3.0-5.0	5.1
	Med. Low	5.0-7.0	7.6
	Med. High	8.5-10.0	10.4
	High	11.5-13.0	13.4

*With the Following Control Lever Positions:

- Function Lever in Panel
- Air Door Lever in Max. A/C

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

A/C-Heater System Electrical Specifications — F-150-350, Bronco

Protective Device		30 Amp. Fuse (Light Green) Thermal Limiter in Blower Resistor Circuit (Integral with Resistor)	
Blower Motor	Blower Speed*	Amps	Volts
Current Draw	Low	6.0	5.0
(Amps and Voltage)	Med. Low	8.0	7.0
*With the Following Control Lever			
Positions:	Med. High	15.0	10.0
• Function Lever in Max. A/C	High	25.0	12.8
• Temp Lever at Cool			
Magnetic Clutch			
Current Draw — Approximately 4.67 Amps @ 12.8 Volts			
Illumination			
Control Assembly		One ICP-161 Bulb	

A/C-Heater System Electrical Specifications — E-150-350

Protective Device		35 Amp. Fuse in Fuse Panel Thermal Limiter in Blower Resistor Circuit (Integral with Resistor)	
Blower Motor	Blower Speed*	Amps	Volts
Current Draw	Low	6.0	5
(Amps and Voltage)	Med. Low	8.0	7
*With the Following Control Lever			
Positions:	Med. High	15.0	10
• Function Lever in Max. A/C	High	25.0	12.8
• Temp Lever at Cool			
Magnetic Clutch			
Current Draw — Approximately 4.67 Amps @ 12.8 Volts			
Illumination			
Control Assembly		One ICP-161 Bulb	

Climate Control Systems — A/C, Heater

SERVICE SPECIFICATIONS — CONT'D

System Electrical Specifications — E-150-350 Auxiliary System

System Protection			
Main System	35 Amp. Fuse in Fuse Panel		
Auxiliary System	Fuse Link (Orange) Connected to Starter Relay or Dual Battery Relay		
Blower Motor	Blower Speed*	Amps	Volts
Current Draw			
Auxiliary System	Off		
*With the Following Control Lever			
Positions:	Low	6.0	5
• Function Lever in Max. A/C	Med. Low	8.0	7
• Temp Lever at Cool	Med. High	15	10
	High	25	12.8
Magnetic Clutch			
Current Draw (A/C Only)	Common with Main A/C System		
Illumination			
Control Assembly	One ICP-161 Bulb		

SERVICE SPECIFICATIONS — CONT'D

Refrigerant Flushing

Refrigerant	Vaporizes @ °F	Approximate Closed Container Pressure @					Adaptability
		60° F	70° F	80° F	90° F	100° F	
R-12	-21.6° F	57 PSI	70 PSI	84 PSI	100 PSI	117 PSI	Self Propelling
F-114	38.4° F	8 PSI	13 PSI	19 PSI	25 PSI	32 PSI	
F-11	74.7° F	8 in Hg	3 in Hg	1 PSI	5 PSI	9 PSI	*
F-113	117.6° F	22 in Hg	19 in Hg	16 in Hg	13 in Hg	8 in Hg	Pump Required

*F-11 is also available in pressurized containers. This makes it suitable for usage when special flushing equipment is not available. However, it is more toxic than R-12 and F-114.

Drive Belt Tension — Lbs. — All Vehicles

Belt Type	New	Used Minimum	Used Reset Limits
5 Rib	110-140	75	110-130
6 Rib	140-170	90	140-160

Torque Specifications

FS-6 Compressor — All Vehicles

Description	TORQUE	
	N-m	ft-lb
Hose Manifold to Compressor — F-150-350, Bronco	24-34	18-25
Hose Manifold to Compressor — Ranger	18-23	13-17
Clutch Hub Nut	13-20	10-14
Compressor Cylinder Bolts	24.5-26.5	18-19
Cylinder Bolts (to Correct Freon Leak)	34 (Max.)	25 (Max.)
Suction Hose to Manifold	28-37	21-27
Discharge Hose to Manifold	20-27	15-20

Climate Control Systems — A/C — Heater

TORQUE SPECIFICATIONS — CONT'D

A/C — Heater System — Ranger

Description	TORQUE	
	N-m	ft-lb
Pressure Switch to Accumulator Nipple Steel Base	7-14	5-10
Pressure Switch (Plastic Base)	Finger Tight Only	
Liquid Line to Evaporator Core	20-27	15-20
Accumulator to Evaporator Core	35-42	26-31
Liquid Line to Condenser	Spring Lock Coupling	
Discharge Line to Condenser	Spring Lock Coupling	
Suction Hose to Compressor Manifold	35-42	26-31
Discharge Hose to Compressor Manifold	33-39	24-29
Hose Manifold to Compressor	18-23	13-17
Clutch Hub Nut	13-20	10-14
Compressor Head Bolts	24.5-26.5	18-19
Compressor Attaching Bolts	34-47	25-35
Compressor Bracket to Engine	42-58	31-43

A/C — Heater System — F-150-350, Bronco

Description	TORQUE	
	N-m	ft-lb
Condenser Mounting Bracket Screws	14-19	10-14
Liquid Line to Evaporator Core	21-27	15-20
Suction Line to Accumulator	40-47	30-35
Accumulator to Evaporator Core Fitting	35-42	26-31

Climate Control Systems — A/C — Heater

TORQUE SPECIFICATIONS — CONT'D

A/C — Heater System — F-150-350, Bronco — Cont'd

Description	TORQUE	
	N-m	ft-lb
Pressure Switch	Hand Tighten	
Compressor Discharge Line to Condenser	21-27	15-20
Liquid Line to Condenser (Self Sealing)	9	7
Liquid Line to Condenser (Not Self Sealing)	21-27	15-20
Suction Line to Compressor	28-37	21-27
Discharge Line to Compressor	28-37	21-27

A/C — Heater (Main) System — E-150-350

Description	TORQUE		
	ft-lb	in-lb	N-m
Suction Hose to Evaporator Core	30-35		41-47
Discharge Hose to Condenser	24-29		33-39
Liquid Line to Condenser or Sight Glass	8-13		11-17
Liquid Line to Expansion Valve	10-15		14-20
Heater Hose Clamps		12-18	1.35-2.03
Condenser to Mounting Bracket	12-18		17-24
Condenser Mounting Bracket to Radiator Support	12-18		17-24
Compressor to Bracket	20-32		28-43
Compressor Bracket to Support to Engine (4.9L)	45-65		62-88
Compressor Adjusting Bracket to Support Bracket (4.9L)	30-45		41-61
Compressor Bracket to Engine (8-Cylinder)	45-65		62-88
Idler Pulley to Bracket (8-Cylinder)	30-45		41-61
Compressor Brace to Engine	30-45		41-61
Compressor Brace to Compressor	20-32		28-43
Evaporator Case to Dash Panel		30-40	3.38-4.51
Plenum to Evaporator Case		12-17	1.35-1.92
Temperature Cable To Bracket at Evaporator Case To Control Assembly		17-22	1.92-2.48
		10-15	1.12-1.69
Defroster Nozzle to Instrument Panel Opening		9-15	1.02-1.69
Control Assembly to Support Bracket		10-15	1.12-1.69
Control Support Bracket to Instrument Panel		17-22	1.92-2.48

TORQUE SPECIFICATIONS — CONT'D

A/C — Heater (Auxiliary) System — E-150-350

Description	TORQUE	
	N-m	ft-lb
Expansion Valve to Evaporator Core	21-27	15-20
Liquid Line to Expansion Valve	14-20	10-15
Liquid Line at Sight Glass	11-17	8-13
Suction Line to Evaporator Core	41-47	30-35
Suction Line Underbody Connection	41-47	30-35
Liquid Line Underbody Connection	14-20	10-15

FRONT SEATS

Seat Track — Manual — Torque N-m (Ft-Lbs) — Ranger

Seat Track-To-Cushion		Seat Track-To-Floor	
Bench	Bucket	Bench	Bucket
12-24 (9-18)	12-24 (9-18)	12-24 (9-18)	12-24 (9-18)

Seat Track — Manual — Torque N-m (Ft-Lbs) — E-, F-150-350, Bronco

Seat Track-To-Cushion			Seat Track-To-Floor Pan or Support			
Vehicle	Bench	Bucket	Captains	Bench	Bucket	Captains
Econoline	—	10-23 (7-17)	10-23 (7-15)	—	62-81 (45-60)	9-20 (6-15)
F-Series & Bronco	17-27 (12-20)	17-27 (12-20)	10-23 (7-15)	25-44 (18-32)	25-44 N-m (18-32 ft-lb)	9-20 (6-15)

CONVENTIONAL REAR SEATS — E-150-350

Torque Specifications

Mounting Bolts	62-81 N·m (45-60 Ft-Lb)
Seat Bolts	34-61 N·m (25-45 Ft-Lb)

Folding Rear Seats — F-150-350 (Super Cab), Bronco, E-150-350

Torque Specifications

Description	TORQUE	
	N·m	ft-lb
Rear Seat Mounting Bolts — F-Series SuperCab	25-44	18-32
Rear Seat Cushion Latch Bolts — Bronco	41-54	30-40
Rear Seat Back Latch Assembly Screws — Bronco	17-27	12-20
Rear Seat Mounting and Latch Striker Bolts — Bronco	62-81	45-60
Rear Seat/Bed Back Cushion to Frame Attaching Screws — E-Series	11-21	8-16
Rear Seat/Bed Back Cushion Wing Nut — E-Series	2-3	20-30(in-lb)
Rear Seat/Bed Side Cushion Retaining Nuts — E-Series	14-20	10-15
Rear Seat/Bed Bottom Cushion Retaining Nuts — E-Series	14-20	10-15
Rear Seat/Bed Mounting Bolts — E-Series	62-81	45-60

Seat Back Latch — Ranger, F-150-350, Bronco

Torque Specifications

Description	TORQUE	
	N·m	ft-lb
Latch Assembly Retaining Nuts (Ranger)	19-27	15-20
Striker Assembly to Seat (Bronco Bucket — Driver's)	13-24	9-18
Bracket to Seat (Bronco Bucket — Passenger)	13-24	9-18
Retainer to Bracket (Bronco Bucket — Passenger)	13-24	9-18
Retainer Nut (Bronco Bucket — Passenger)	8-12	6-9
Latch Attaching Bolts (F-Series: Regular Cab)	25-37	18-28
Latch Attaching Bolts (F-Series: Super Cab, Bronco)	17-24	12-18

RECLINING SEAT BACK — RANGER

Torque Specifications

Recliner Assembly to Seat Cushion Retaining Screws..... 30-43 N-m (22-32 ft-lb)
 Inboard Seat Back to Seat Cushion Pivot Screws 19-27 N-m (15-20 ft-lb)

Seat and Shoulder Belts

Parts Replacement Chart — Seat and Shoulder Belt with Damaged Weld Nut Anchor Plate Threads — All Vehicles

Original Parts — Seat Belt			Replacement Parts — Seat Belt		
Part No.	(1) Code Letter	Part Name	Part No.	(1) Code Letter	Part Name
386273-S100	IA	Bolt — 7/16-20 x 1.38 Pan Head Tapping	383531-S36	X	Bolt — 1/2-13 x 1.38 Pan Locking
386274-S100	IB	Bolt — 7/16-20 x 1.75 Pan Head Tapping (.50 Shoulder)	383753-S36	Y	Bolt — 1/2-13 x 1.75 Pan Locking (.50 Shoulder)
382629-S100	—	Washer — .463/.443 I.D. Plate (1.80 Dia. .190 Thick)	382552-S100	—	Washer — 1/2 Flat (1.30 Dia. .190 Thick)
382583-S100	—	Washer — 1/2 Serrated (.18 Thick)	382533-S100	—	Washer — 1/2 Flat (.25 Thick)
386272-S100	IF	Bolt — 7/16-20 x .88 Pan Head Tapping	383437-S36	W	Bolt — 1/2 x 13 Pan Locking
386276-S100	IL	Bolt — 7/16-20 x 1.75 Pan Shoulder Tapping (.75 Shoulder)	383754-S36	Z	Bolt — 1/2-13 x 2.25 Pan Locking (.88 Shoulder)
386277-S100	IK	Bolt — 7/16-20 x 1.38 Pan Shoulder Tapping (.50 Shoulder)	385709-S	T	Bolt — 1/2-13 x 1.38 Pan Head Shoulder Locking
382580-S100	—	Washer — 7/16			
386392-S100	D	Bolt — 3/8-16 x 1.50 Pan Head Tapping			
	IG	7/16-20 x 2.15			
384966-S100	V	Bolt — 7/16-20 x 1.75 Pan Head Tapping			

(1) Identification letter on top of bolt head or face of spacer.

Note: Bolt Torque Must be Maintained at 30-43 N-m (22-32 ft-lb)

Torque Specifications — All Vehicles

All Bolts..... 30-43 N-m (22-32 ft-lb)

DOOR WINDOWS — MECHANICAL

Torque Specifications

Regulator Handle Retaining Screw (Ranger).....	4-5.5 N-m (36-48 in-lb)
Window Guide Retaining Nut (Ranger)	7-11 N-m (62-97 in-lb)
Rear Run Retainer Attaching Screws (E-150-350).....	10-14 N-m (7-11 ft-lb)

Door Windows — Power

Electrical Specifications — F-150-350, Bronco

Torque Specifications — F-150-350, Bronco

Motor Retaining Screws.....	6-10 N-m (50-85 in-lb)
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Pivot Type Rear Door and Side Window — E-150-350

Torque Specifications

Hinge Attaching Screws.....	0.9-2.25 N-m (8-20 in-lb)
Latch Anchor Attaching Screws	3-8 N-m (2-6 ft-lb)

Tailgate Window — Bronco II

Torque Specifications

All Nuts and Screws.....	9-14 N-m (6-11 ft-lb)
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MIRRORS — INSIDE AND OUTSIDE

Torque Specifications — All Vehicles

Description	N-m	In-Lb
Inside Rearview Mirror Set Screw — All	0.6-1.7	5-15
STD — Single Arm RPO Swing Away		10-25
E-150-350		3-6 (ft-lbs)
Ranger, F-150-350, Bronco	4-8	35-70
Conventional Outside Mirror Reinforcement Attaching Screw — Ranger	1.3-2.2	
Western Outside Mirror Reinforcement Attaching Screw — Ranger	1.3-2.2	12-19
Western Outside Mirror Reinforcement Retaining Nut — Ranger	4-8	35-70
Western Outside Mirror Attaching Screws — All	4-8	35-70
Electric Mirror Attaching Screws — E-, F-150-350, Bronco	4-8	35-70
Electric Mirror Wiring Assembly Attaching Screw — E-, F-150-350, Bronco	1.13-1.46	10-13
Electric Mirror Switch Bezel Nuts — E-, F-150-350, Bronco	2.03-2.75	18-20

Body — Doors, Hood, and Tailgate

DOOR HINGES, LATCHES AND MECHANICAL LOCKS

Torque Specifications

Ranger, F-150-350, Bronco

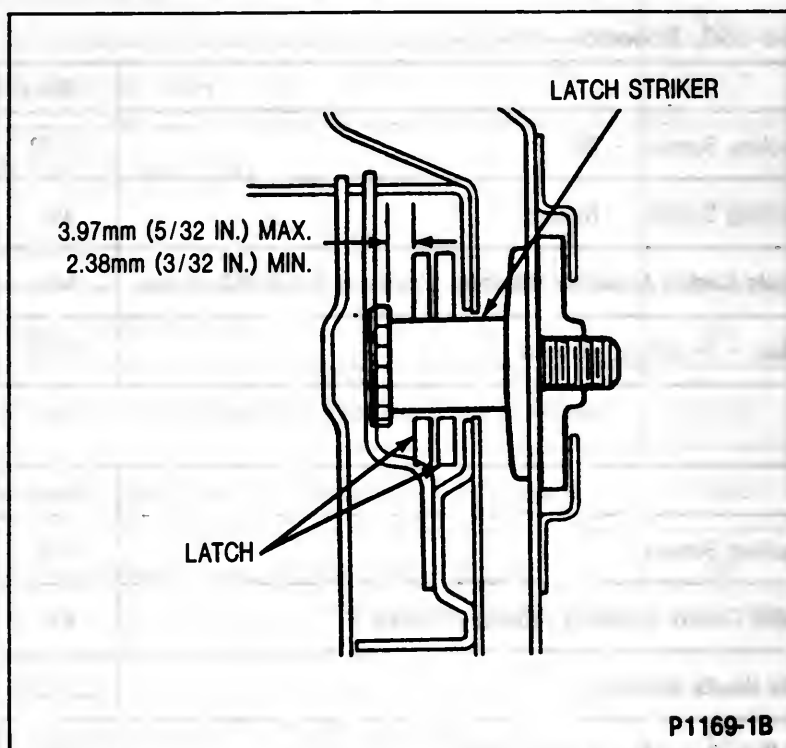
Description	N-m	ft-lb
Door Hinge Attaching Screws — All	19-32	14-24
Door Latch Attaching Screws — Ranger	4-8	35-70 (in-lb)
Door Latch Remote Control Assembly Attaching Screws — F-150-350, Bronco	9-14	6-10
Door Latch Striker — F-150-350, Bronco	40-60	30-45

E-150-350

Description	N-m	ft-lb
Door Hinge Attaching Screws	19-32	14-24
Front Door Remote Control Assembly Attaching Screws	4-8	3-6
Front Door Inside Handle Bushings	1.12-2.25	10-20 (in-lb)
Front and Front Side Cargo Doors Latch Striker	41-67	30-50
Front and Front Side Cargo Doors Outside Handle Retaining Nuts	4-9	3-7
Front and Front Side Cargo Doors Latch Attaching Screws	4-8	3-6
Rear Side Cargo Door Upper and Lower Latch Attaching Screws	9-14	6-11
Rear Side/Left Rear Door Remote Control Assembly Attaching Screws	4-8	3-6
Rear Side/Left Rear Doors Latch Strikers	41-67	30-50
Right Rear Door Remote Control Assembly and Bracket Attaching Screws	4-8	3-6
Right Rear Door Inside Handle Retaining Nuts	2-5	18-43 (in-lb)
Right Rear Door Outside Handle Retaining Nuts	4-9	3-7
Right Rear Door Upper Latch and Striker Assemblies Screws	8-14	6-11
Right and Left Rear Doors Lower Latch and Striker Assemblies Screws	8-14	6-11

Body — Doors, Hood, and Tailgate

Latch Striker Adjustment — Ranger



Body — Doors, Hood, and Tailgate

SLIDING DOOR — E-150-350

Torque Specifications

Description	N·m	ft·lb
Latch Attaching Screws	4-8	35-70 (in·lb)
Hinge Attaching Screws	9-14	6-11
Roller Retaining Nut	10-14	7-11
Roller Bracket Attaching Screws	10-14	7-11
Guide Assembly Attaching Screws	17-27	12-20
Latch Striker	41-67	30-50
Center Hinge Check Attaching Screws	7-14	5-11
Latch Rod Retaining Nut	2-5	18-43 (in·lb)
Outside Handle Sleeve Attaching Screws	0.9-2.25	8-20 (in·lb)

Hood

Torque Specifications — All Vehicles

Description	N·m	ft·lb
Hinge to Hood Attaching Bolts — Ranger	7-11	5-8
Hinge to Cowl Attaching Bolts — Ranger	9-14	7-10
Auxiliary Latch Attaching Screws — Ranger	9-14	7-10
Auxiliary Latch Attaching Screws — F-150-350, Bronco	22-34	16-25
Hinge Retaining Nuts (1) — E-150-350	7-9	5-7
Hook Attaching Screws — E-150-350	17-27	12-20

(1) Fiberglass Hood.

Body — Doors, Hood, and Tailgate

TAILGATE

Torque Specifications — Ranger

Description	N-m	ft-lb
Latch Bracket to Tailgate Retaining Nut	8-15	6-11
Latch Bracket to Body Attaching Screws	22-34	17-25
Latch Attaching Screws	22-34	17-25
Latch Release Handle Attaching Screws	9-14	7-11
Hinge Attaching Screws	27-40	20-29

Torque Specifications — F-150-350, Bronco

Description	N-m	ft-lb
Handle Assembly Attaching Screws — F-150-350	17-27	12-20
Brackets Attaching Screws — Bronco	8-14	6-11
Latch Striker Attaching Screws — Bronco	17-27	12-20
Cable Attaching Bolts — Bronco	28-40	20-30
Latch Control Assembly Attaching Screws — Bronco	8-14	6-11
Latch Attaching Screws — Bronco	3-8	2-6

TRIM PANELS

Torque Specifications

Description	N·m	In-Lb
Door Trim Panel Support Attaching Screws — F-150-350, Bronco	1-2	9-17
Door and Quarter Arm Rest Attaching Screws — E-150-350	2.5-3	22-27
Utility Table Stowage Strap Attaching Screws — E-150-350	4-9	3-7 (ft-lb)
Utility Table Stowage Support Attaching Screws — E-150-350	2.5-3	22-27
Instrument Panel Pad Retaining Nuts — E-150-350	0.9-2.25	8-20
Instrument Panel Pad Attaching Screws — F-150-350, Bronco	1-2	8-18

Body — Fiberglass Rear Roof

FIBERGLASS REAR ROOF — BRONCO

Torque Specifications

Roof Attaching Screws	7-10 N·m (6-7 ft-lb)
Roof Locating Pins	8-16 N·m (6-11 ft-lb)

Body — Sheet Metal

RANGER

Cab Interior Dimensions — 4x2, 4x4

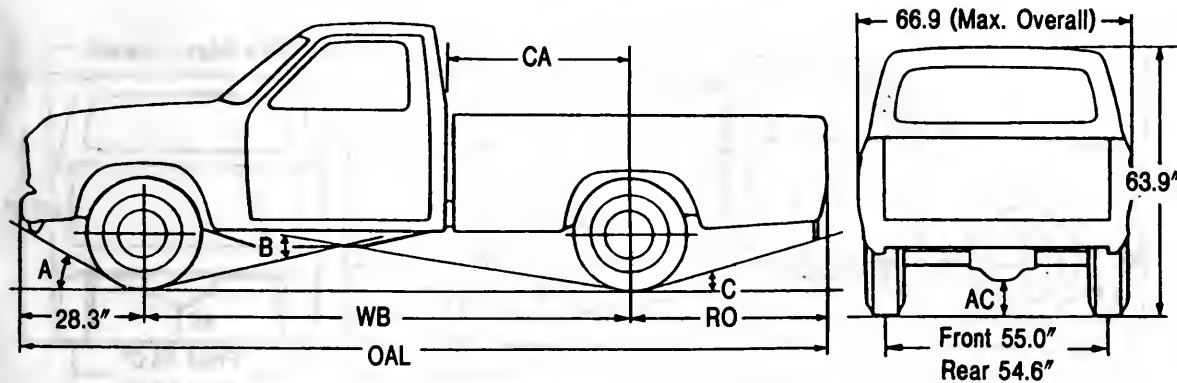
Head Room.....	39.2 in.
Leg Room.....	42.4 in.
Shoulder Room.....	55.6 in.
Hip Room.....	55.0 in.

Pickup Box Dimensions — 4x2, 4x4

Wheelbase	107.9 in.	113.9 in.
Cargo Box Nominal Size	6 ft.	7 ft.
Inside Length at Floor	72.2 in.	84.2 in.
Tailgate Opening at Floor	54.2 in.	54.2 in.
Max. Width at Floor	54.3 in.	54.3 in.
Width Between Wheelhouses	40.4 in.	40.4 in.
Inside Height	16.5 in.	16.5 in.
Cargo Volume (1)	37.4 cu. ft.	43.5 cu. ft.

(1) Does not include allowance for wheelhouses.

Basic Vehicle Dimensions — 4x2 Styleside Pickups

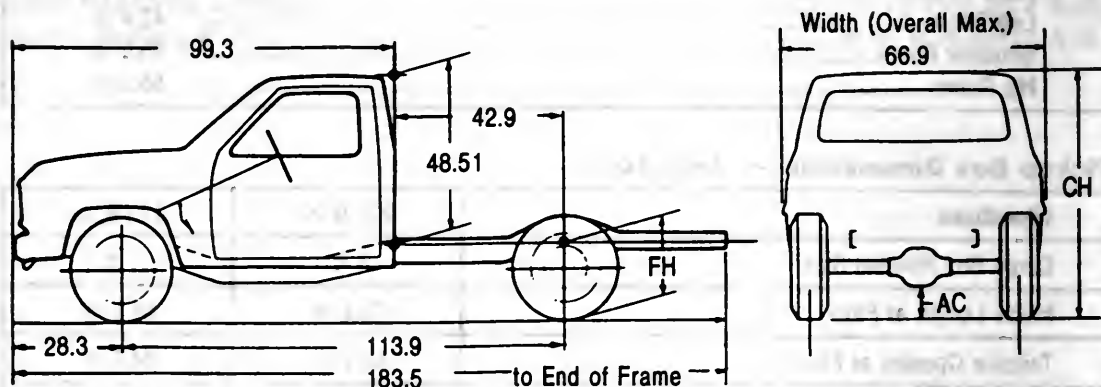


Wheelbase (WB)	Overall Length (OAL)	Cab-to-Axle (CA)	Rear Overhang (RO)	Axle Clearance (AC)	Approach Angle (A)	Ramp Angle (B)	Departure Angle (C)	Turning Dia. Curb-to-Curb
in.	in.	in.	in.	in.	degrees	degrees	degrees	ft.
107.9	175.6	36.9	39.4	6.6	21.8°	17.0°	17.6°	36.3
113.9	187.6	42.9	45.4	6.6	21.8°	16.7°	15.1°	38.1

NOTE: All dimensions except (AC) are with unloaded vehicle. Axle Clearance is with loaded vehicle.

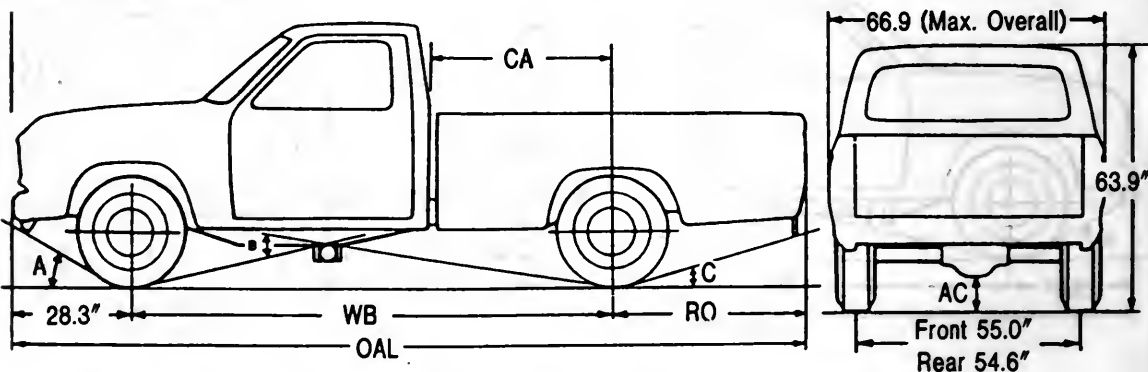
RANGER — CONT'D

Basic Vehicle Dimensions — 4x2 Chassis Cab



Wheelbase (WB)	Load Height (LH)		Cab Height (CH) Empty	Overall Length (OAL)	Turning Dia. (Curb-to-Curb) Power Steering
	Empty	Loaded			
in.	in.	in.	in.	in.	ft.
113.9	21.09	14.46	64.72	183.1	38.1

Basic Vehicle Dimensions — 4x4 Vehicles

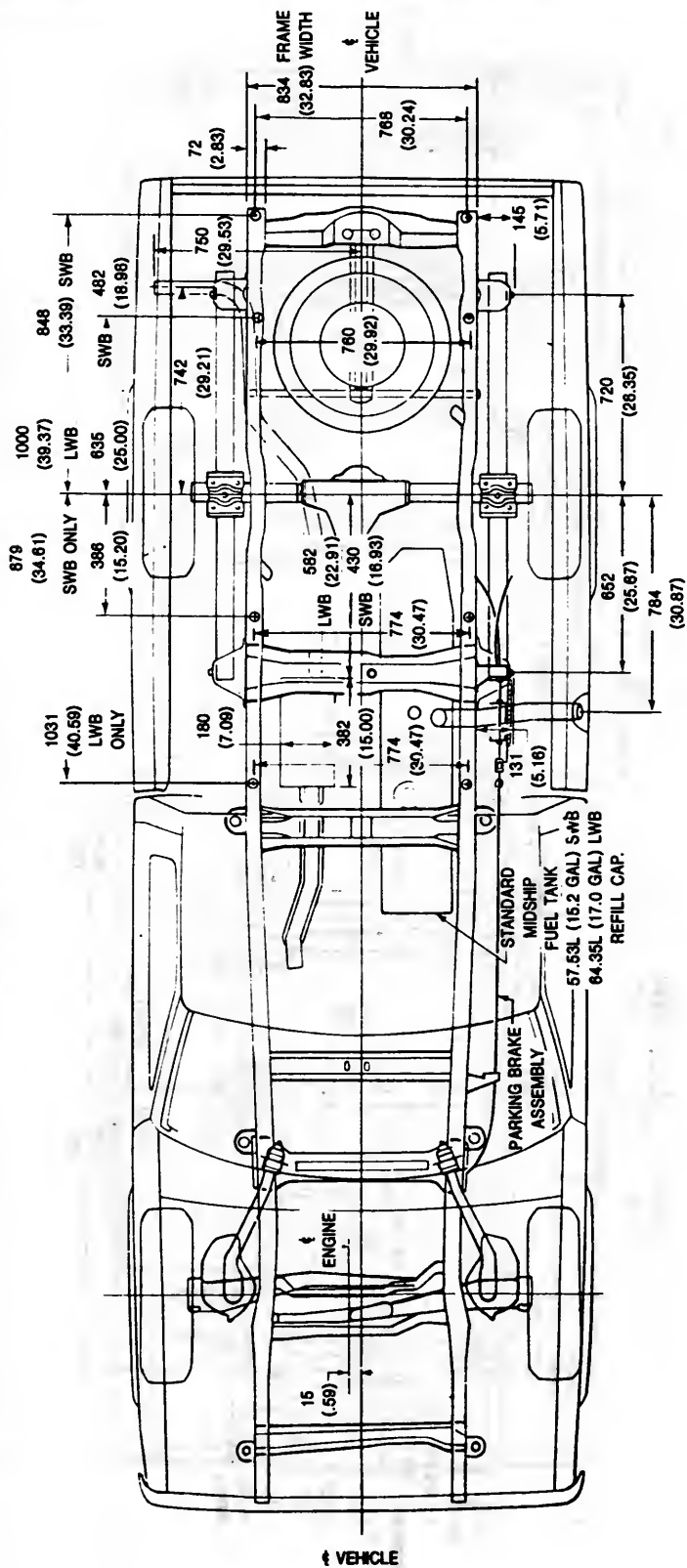


Wheelbase (WB)	Overall Length (OAL)	Cab-to-Axle (CA)	Rear Overhang (RO)	Axle Clearance (AC)	Approach Angle (A)	Ramp Angle (B)	Departure Angle (C)	Turning Dia. Curb-to-Curb
in.	in.	in.	in.	in.	degrees	degrees	degrees	ft.
107.9	175.6	36.9	39.4	6.8	29.3	25.0	22.7	36.4
113.9	187.6	42.9	45.4	6.8	29.3	22.5	19.3	38.2

NOTE: All dimensions except cab height are with loaded vehicle. Cab height is with unloaded vehicle.

RANGER — CONT'D

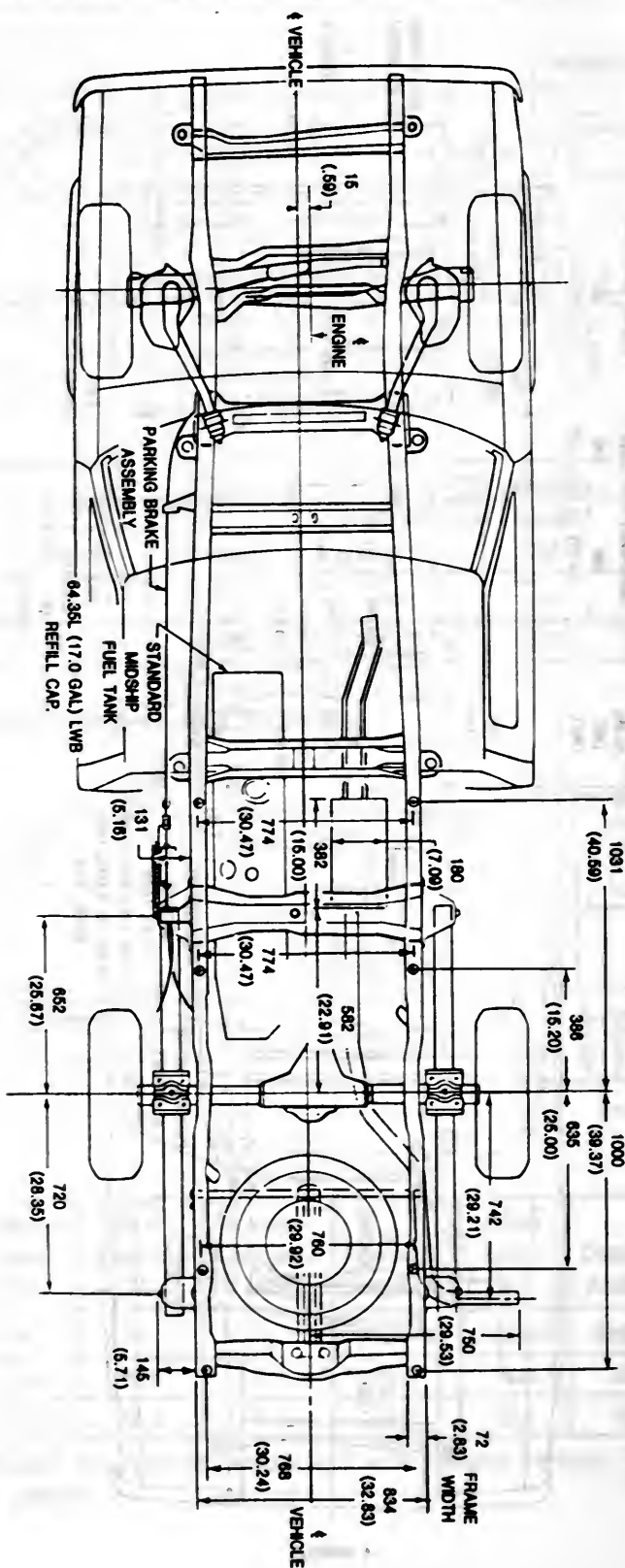
Underbody Specifications — 4x2 Styleside Pickup



Body — Sheet Metal

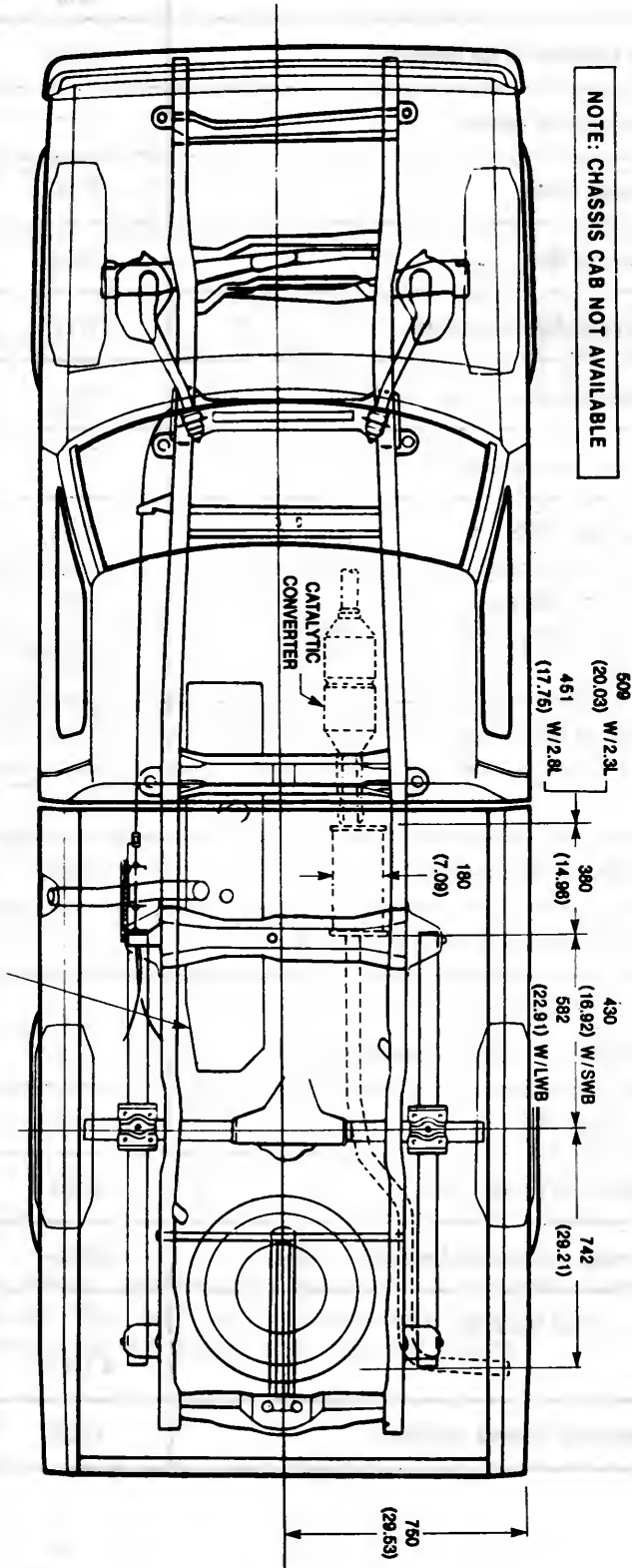
RANGER — CONT'D

Underbody Specifications — 4x2 Chassis Cab



UNDERBODY SPECIFICATIONS — STYLESIDE PICKUP (4x4)

Ranger — Cont'd



RANGER — CONT'D

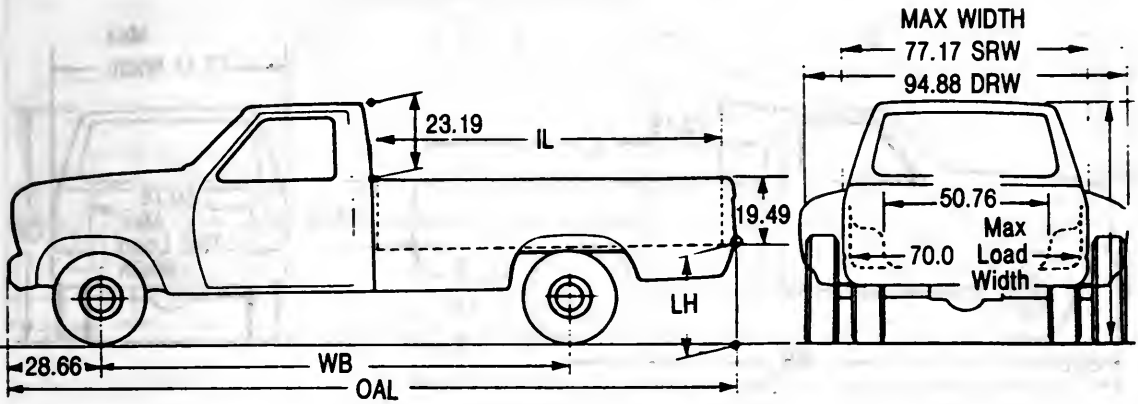
Torque Specifications

Description	N-m	ft-lb
Stone Deflector to Radiator Grille Support	1.3-2.2	12-19 (in-lb)
Stone Deflector to Front of Vehicle	7-11	5-8
Air Deflector Attaching Bolts	7-11	5-8
Front Bumper Attaching Nuts	23-31	17-23
Front Bumper Extension Attaching Nuts	7-11	5-8
Front Bumper Guard Attaching Screw and Nut	23-71	17-23
Fender Top and Front Attaching Bolts	7-11	5-8
Fender Bottom Attaching Bolt	17-24	38-61
Fender Apron Attaching Screws	9-14	7-20
Body to Frame Bolts	74-102	55-75
Body Mount Bracket Attaching Nuts	61-92	45-68
FESM Bracket Nut	47-68	35-50
Rear Bumper Attaching Bolts and Nuts	125-185	92-136
Rear Bumper Extension Attaching Bolts (XLS Only)	7-11	6-8
Spare Tire Carrier — Under Vehicle		
Support Retainer to Channel Assembly Nut	20-30	15-22
Support to Frame Nut	40-64	30-47
Hinge Assembly to Frame Nuts	40-64	30-47
Hinge Assembly to Channel Assembly — Bolt	28-42	21-30
Spare Tire Carrier — Box Mounted		
Wing Nut	4.1-4.7	3-3.4
Support Assembly Screws and Nuts	17-27	13-19

Body — Sheet Metal

VEHICLE DIMENSIONS — REGULAR CAB STYLESIDE PICKUP (4x2)

F-150-350



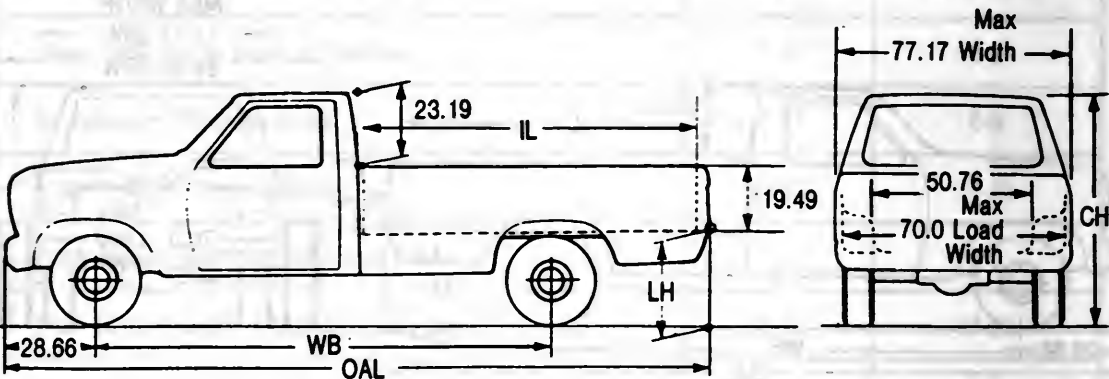
Model	Wheel- base (WB)	Interior Length (IL) (At Floor)	Load Height(1) (LH)		Cab Height(1) (CH) Empty	Overall Length (OAL)	Turning Diameter (Curb to Curb)	
			Empty	Loaded			Manual	Power
	in.	in.	in.	in.	in.	in.	ft.	ft.
F-150 4x2	116.8 133.0	82.1 98.2	29.3 28.9	24.4 24.4	70.1 70.2	192.1 208.3	39.4 44.1	39.2 43.9
F-250 4x2 (Under 8500 lbs. GVWR)	133.0	98.2	32.4	26.7	73.2	208.3	45.2	45.2
F-250 HD 4x2 (Over 8500 lbs. GVWR)	133.0	98.2	31.6	27.0	73.4	208.3	45.3(2)	45.2
F-350 4x2 (Single Rear)	133.0	98.2	31.7	27.1	73.2	208.3	—	45.2
F-350 4x2 (Dual Rear)	133.0	98.2	30.7	26.5	72.5	208.3	—	45.2

- (1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.
- (2) With power steering delete option and 4.9L I-6 engine.

Body — Sheet Metal

VEHICLE DIMENSIONS — REGULAR CAB STYLESIDE PICKUP (4x4)

F-150-350 — Cont'd

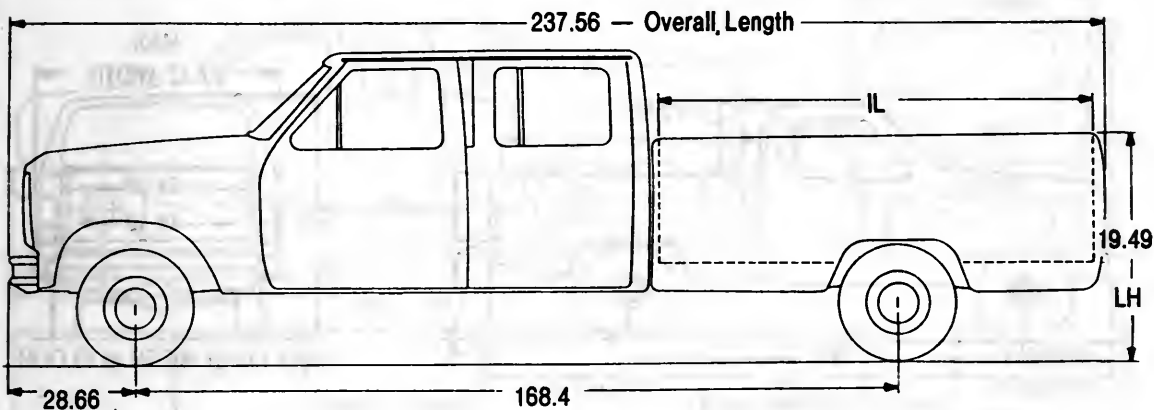


Model	Wheelbase (WB)	Interior Length (IL) (At Floor)	Load Height (LH)		Cab Height (CH) Empty	Overall Length (OAL)(1)	Turning Dia. (Curb to Curb) Power Steering
			Empty	Loaded			
	in.	in.	in.	in.	in.	in.	ft.
F-150 4x4	116.8	82.1	32.6	27.0	73.4	192.1	40.2
	133.0	98.2	32.5	26.9	73.1	208.3	44.9
F-250 4x4 Under 8500 lbs. GVWR	133.0	98.2	33.9	28.5	75.6	208.3	46.3
F-250 HD 4x4 Over 8500 lbs. GVWR	133.0	98.2	34.6	28.7	76.3	208.3	46.3
F-350 4x4	133.0	98.2	33.3	28.8	75.8	208.3	50.4

(1). Excluding rear bumper, if ordered.

VEHICLE DIMENSIONS — CREW CAB STYLESIDE PICKUPS (4x2)

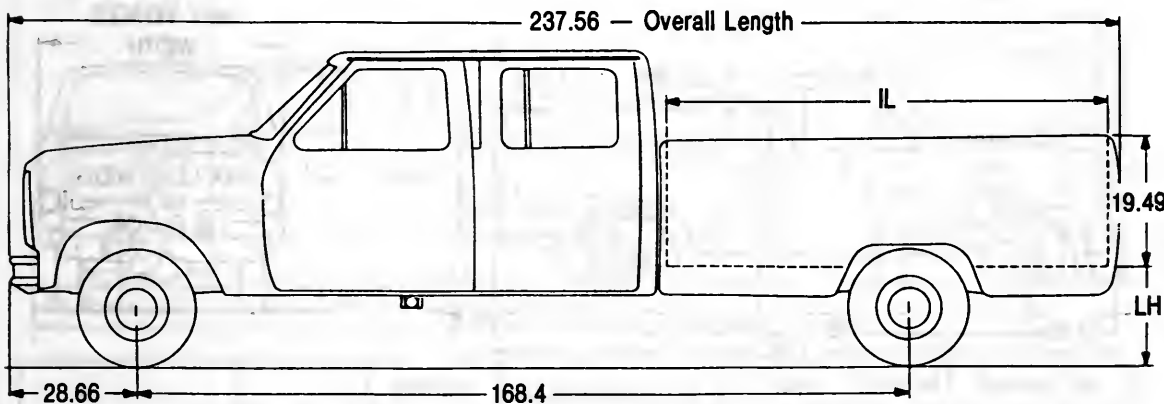
F-150-350 — Cont'd



Model	Wheelbase (WB) in.	Interior Length (IL) (At Floor) in.	Load Height (1) (LH)		Cab Height(1) (CH) Empty in.	Overall Length (OAL) in.	Turning Diameter (Curb to Curb) ft.
			Empty in.	Loaded in.			
F-350 4x2	168.4	98.2	32.4	27.8	74.5	243.7	56.0

(1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

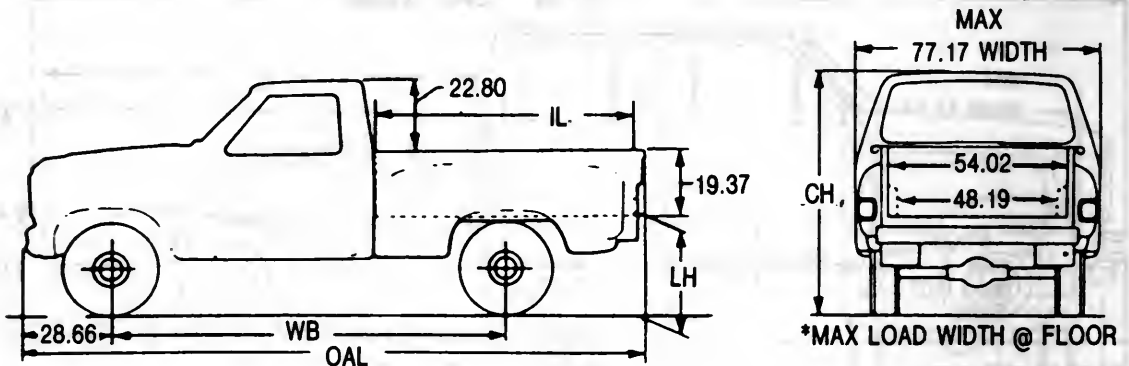
Vehicle Dimensions — Crew Cab Styleside Pickups (4x4)



Model	Wheelbase (WB) in.	Interior Length (IL) (At Floor) in.	Load Height (LH)		Cab Height (CH) Empty in.	Overall Length (OAL) in.	Turning Dia. (Curb to Curb) Power Steering ft.
			Empty in.	Loaded in.			
F-350 4x4	168.4	98.2	35.38	30.74	77.04	243.6	62.3

VEHICLE DIMENSIONS — REGULAR CAB FLARESIDE PICKUPS (4x2)

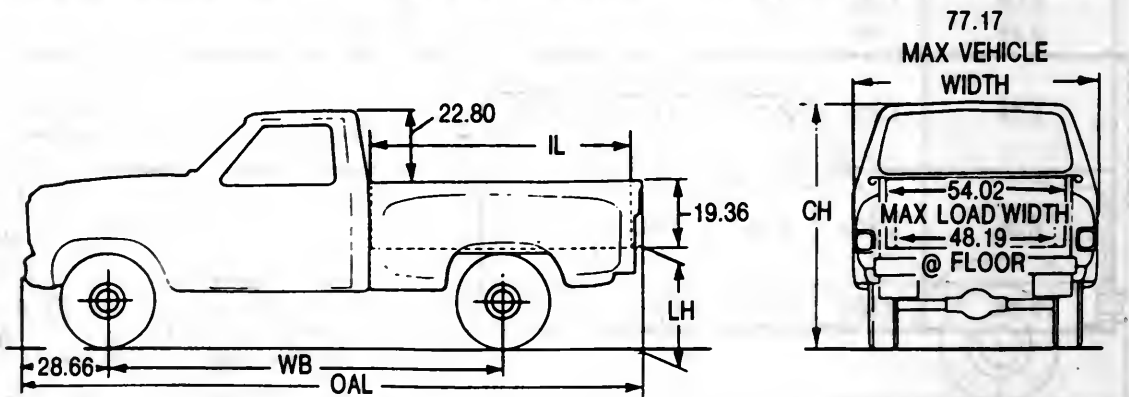
F-150-350 — Cont'd



Model	Wheelbase (WB)	Interior Length (IL)	Load Height(1) (LH)		Cab Height(1) (CH)	Overall Length (OAL)	Turning Diameter (Curb to Curb)	
		(At Floor)	Empty	Loaded	Empty		Manual	Power
	in.	in.	in.	in.	in.	in.	ft.	ft.
F-150 4x2	116.8	79.8	30.1	26.2	70.1	189.3	39.4	39.2

(1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

Vehicle Dimensions — Regular Cab Flareside Pickups (4x4)

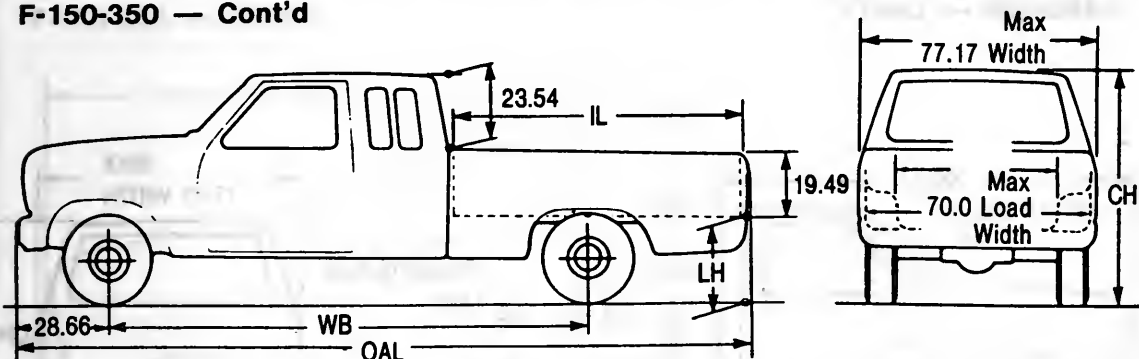


Model	Wheelbase (WB)	Interior Length (IL) (At Floor)	Load Height (LH)		Cab Height (CH) Empty	Overall Length (OAL)	Turning Dia. (Curb to Curb) Power Steering
			Empty	Loaded			
	in.	in.	in.	in.	in.	in.	ft.
F-150 4x4	116.8	79.8	33.5	28.8	73.4	189.3	40.2

Body — Sheet Metal

VEHICLE DIMENSIONS — SUPER CAB STYLESIDE PICKUPS (4x2)

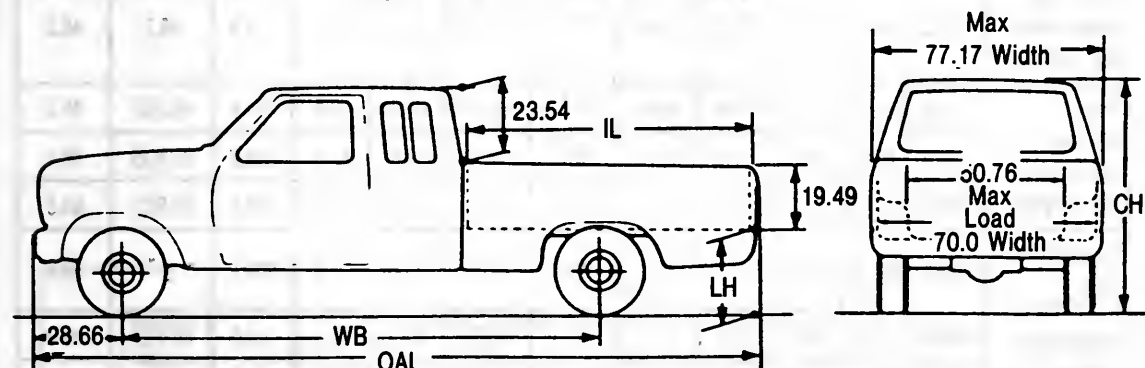
F-150-350 — Cont'd



Model	Wheelbase (WB)	Interior Length (IL) (At Floor)	Load Height(1) (LH)		Cab Height(1) (CH) Empty	Overall Length (OAL)	Turning Diameter (Curb to Curb)	
			Empty	Loaded			Manual	Power
	in.	in.	in.	in.	in.	in.	ft.	
F-150 4x2	138.8	82.1	30.6	25.4	71.5	214.1		45.7
	155.0	98.2	30.3	25.4	71.5	230.3		50.4
F-250 HD 4x2 (Over 8500 lbs. GVWR)	155.0	98.2	31.4	27.1	73.6	230.3	51.9	51.8

(1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.

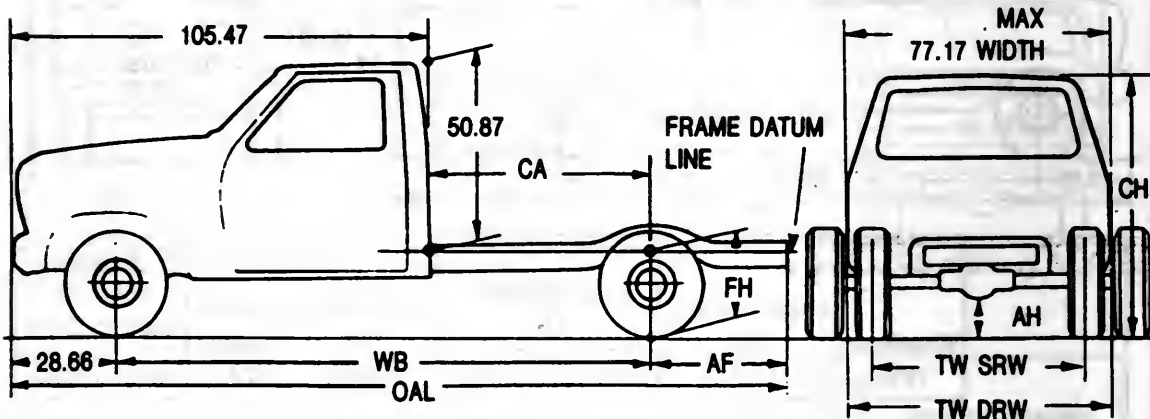
Vehicle Dimensions — Super Cab Styleside Pickups (4x4)



Model	Wheelbase (WB)	Interior Length (IL) (At Floor)	Load Height (LH)		Cab Height (CH) Empty	Overall Length (OAL)	Turning Dia. (Curb to Curb) Power Steering
			Empty	Loaded			
	in.	in.	in.	in.	in.	in.	ft.
F-150 4x4	155	98.2	32.1	26.9	73.3	230.3	51.5
F-250 4x4 Under 8500 lbs. GVWR	155	98.2	34.2	29.1	75.2	230.3	57.8

VEHICLE DIMENSIONS — CHASSIS CAB (4x2)

F-150-350 — Cont'd



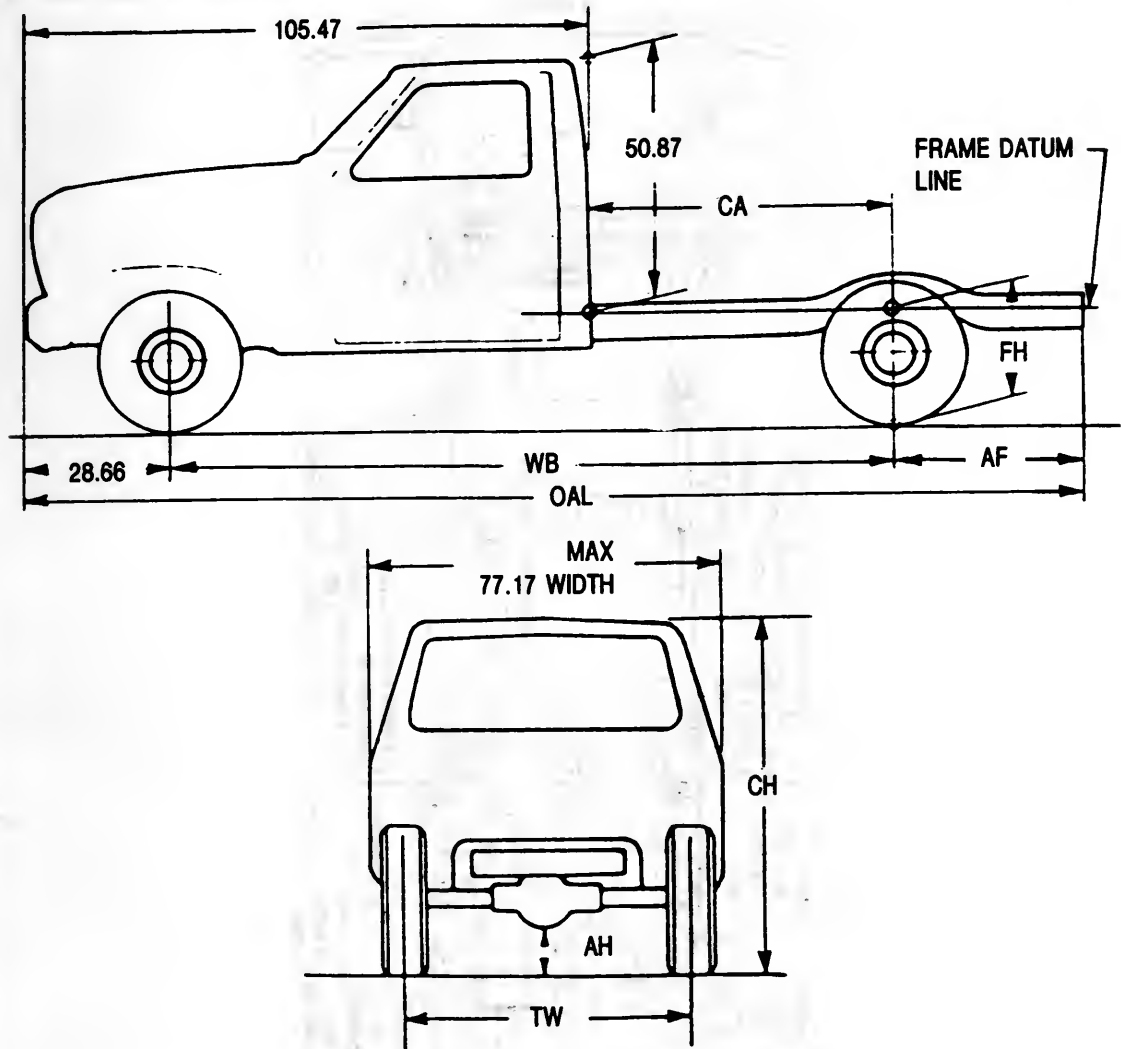
Model	Wheel- base (WB)	Cab to Axle (CA)	Axle to Frame (AF)	Frame Height (FH)(1)		Axle Height (AH) Loaded	Tread Width (TW)		Cab Height (CH)(1) Empty	Overall Length (OAL)	Turning Diameter (Curb to Curb)	
				Empty	Loaded		Front	Rear			Manual	Power
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	ft.	ft.
F-250 4x2 (Under 8500 lbs. GVWR)	133.0	56.2	40.5	25.6	19.5	7.5	65.7	64.3	73.5	201.9	45.2	45.2
F-250 HD 4x2 (Over 8500 lbs. GVWR)	133.0	56.2	40.5	24.3	20.0	7.5	65.7	64.3	73.5	201.9	45.3(2)	45.2
	136.8	60.0	38.5	23.9	20.7	8.1	65.7	63.5	73.5	204.0	46.4(2)	46.4
	160.8	84.0	47.5	23.8	20.7	8.1	65.7	63.5	73.4	237.0	53.6(2)	53.5
F-350 SRW 4x2	136.8	60.0	38.5	24.0	20.7	8.1	65.7	63.5	73.4	204.0	—	46.4
F-350 DRW 4x2	136.8	60.0	38.5	23.6	20.0	7.7	65.7	65.1	72.9	204.0	46.4(2)	46.3
	160.8	84.0	47.5	23.5	20.0	6.3	65.7	65.1	72.7	237.0	53.6(2)	53.5

- (1) The height data shown represents dimensions of a nominal vehicle with no options. Actual height may vary due to production tolerances.
- (2) With Power Steering Delete Option and 4.9L I-6 engine.

Body — Sheet Metal

VEHICLE DIMENSIONS — CHASSIS CAB (4x4)

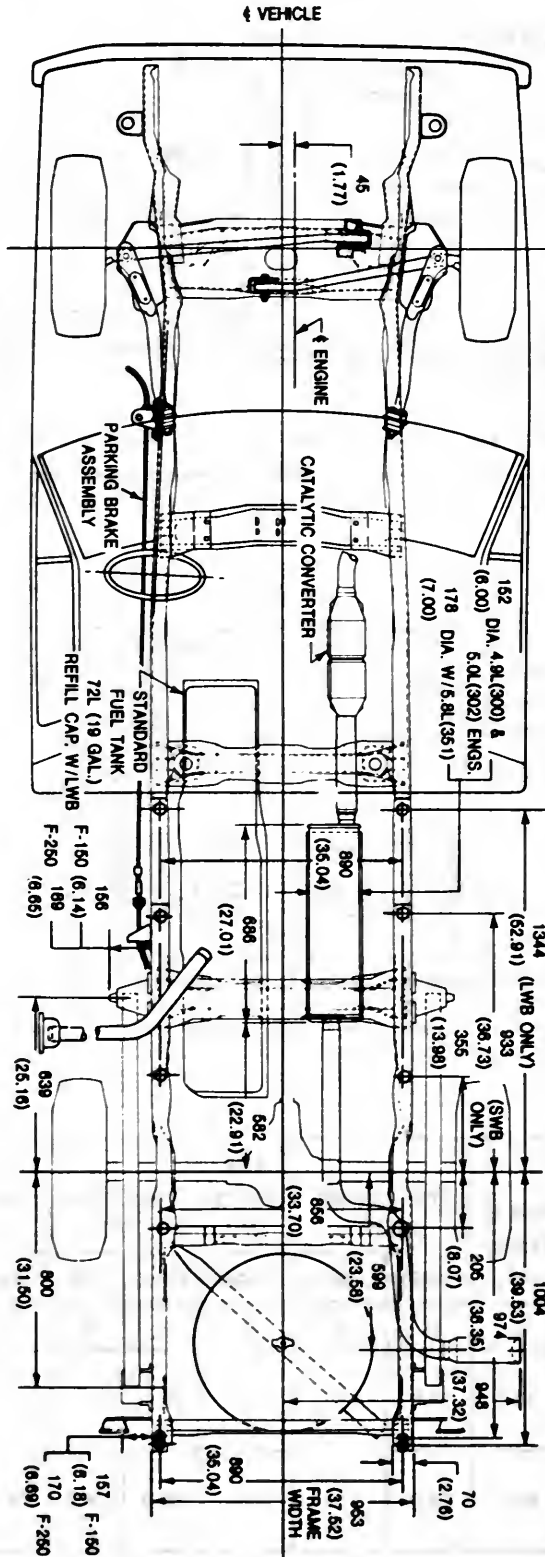
F-150-350 — Cont'd



	Wheel- base	Cab to Rear Axle (CA)	Axle to Frame (AF)	Frame Height (FH)		Axle Height (AH)	Tread Width (TW)		Cab Height (CH)	Overall Length (OAL)	Turning Dia. (Curb-to-Curb) Power Steering
	(WB)			Empty	Loaded		Front	Rear			
Model	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	ft.
F-250 4x4	133	56.2	40.5	27.6	21.7	8.1	66.7	64.3	76.5	201.9	46.3
F-350 4x4	133	56.2	40.5	26.0	21.8	8.1	66.9	64.3	76.0	201.9	50.4

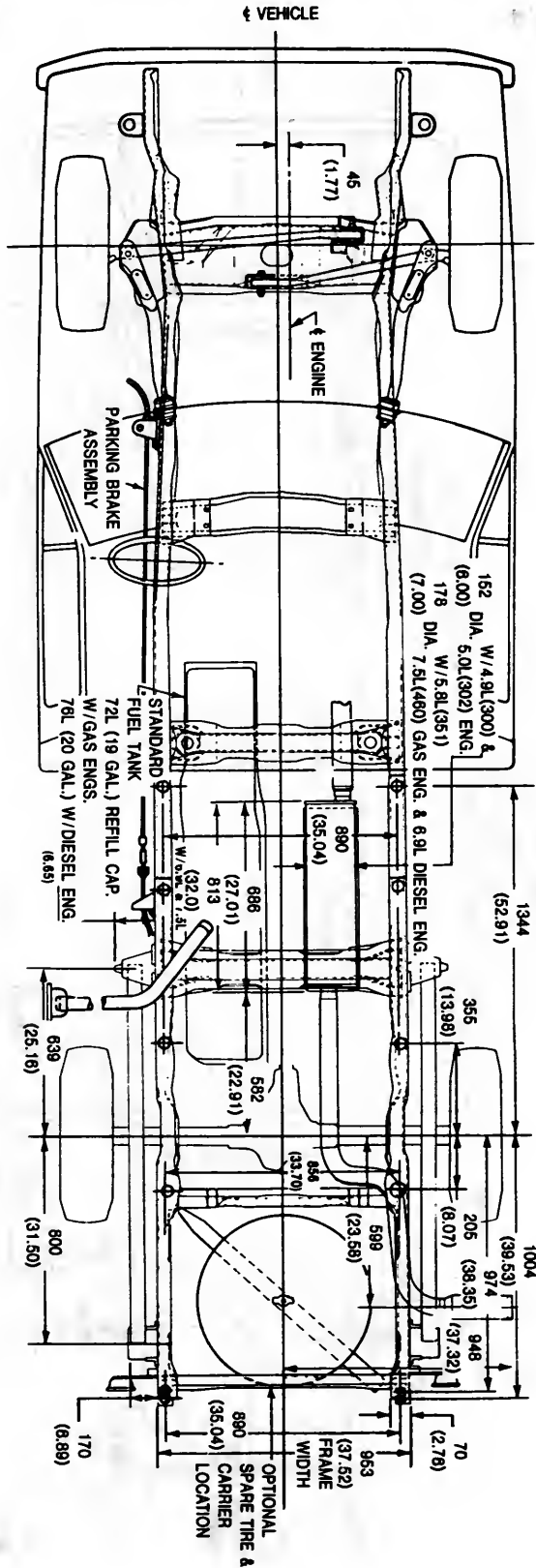
Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-150-250 REGULAR CAB STYLE SIDE (4x2)

F-150-350 — Cont'd

UNDERBODY SPECIFICATIONS — F-250 H.D./F-350 REGULAR CAB — CHASSIS AND STYLESIDE — (4x2) — 133 INCH WHEELBASE

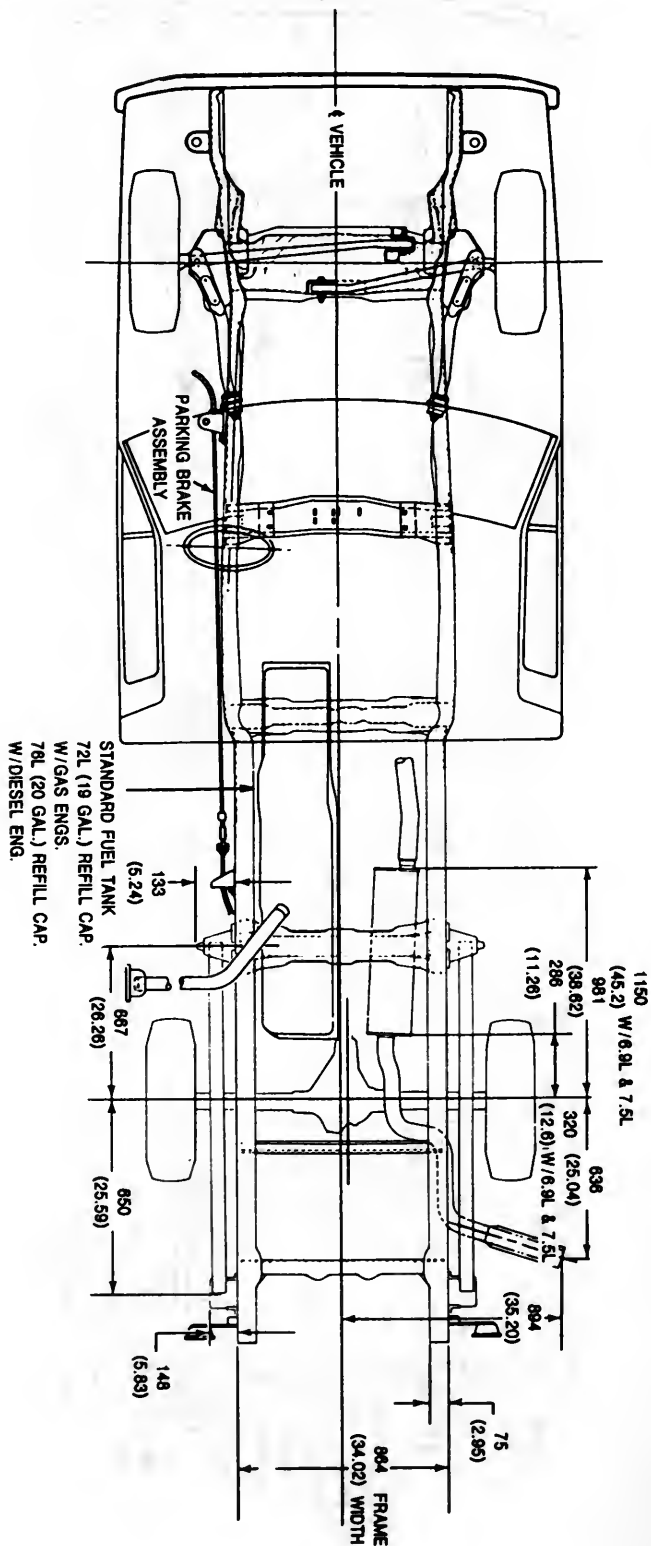
F-150-350 — Cont'd



Body — Sheet Metal

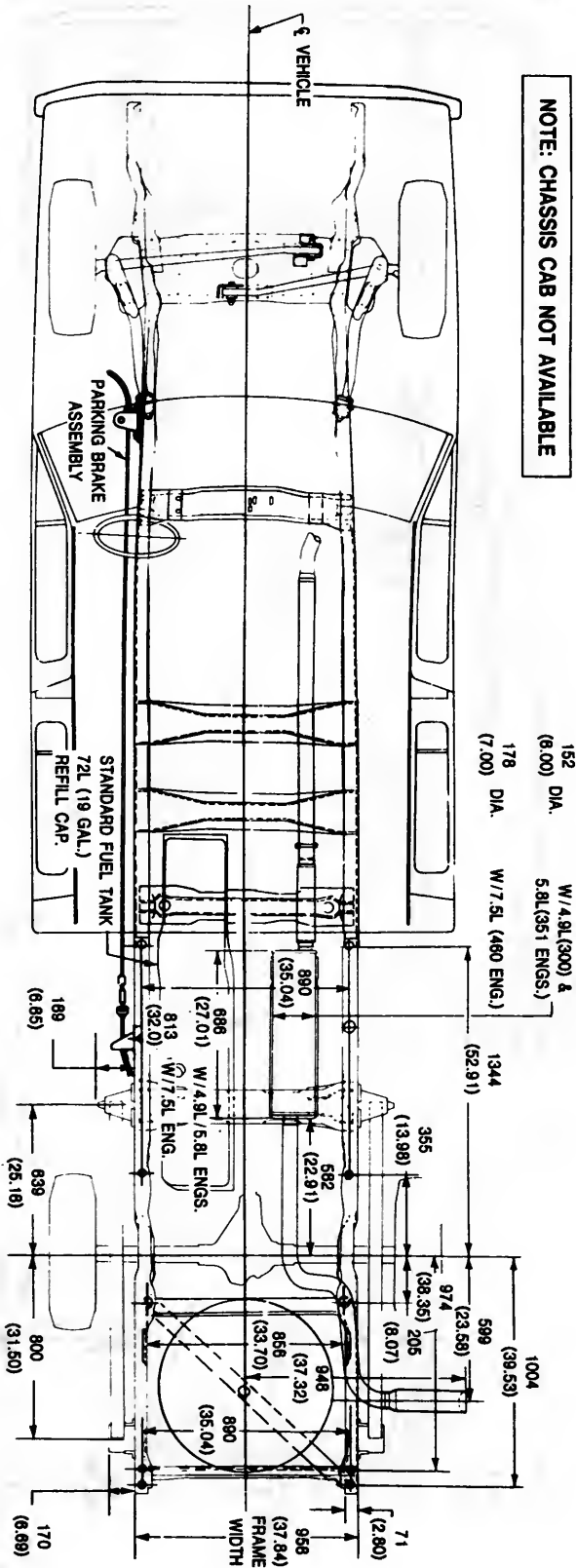
UNDERBODY SPECIFICATIONS — F-250 H.D., F-350 REGULAR CHASSIS CAB (4x2) — 136.8 INCH AND 160.8 INCH WHEELBASES

F-150-350 — Cont'd



UNDERBODY SPECIFICATIONS — F-350 CREW CAB STYLE SIDE (4x2)

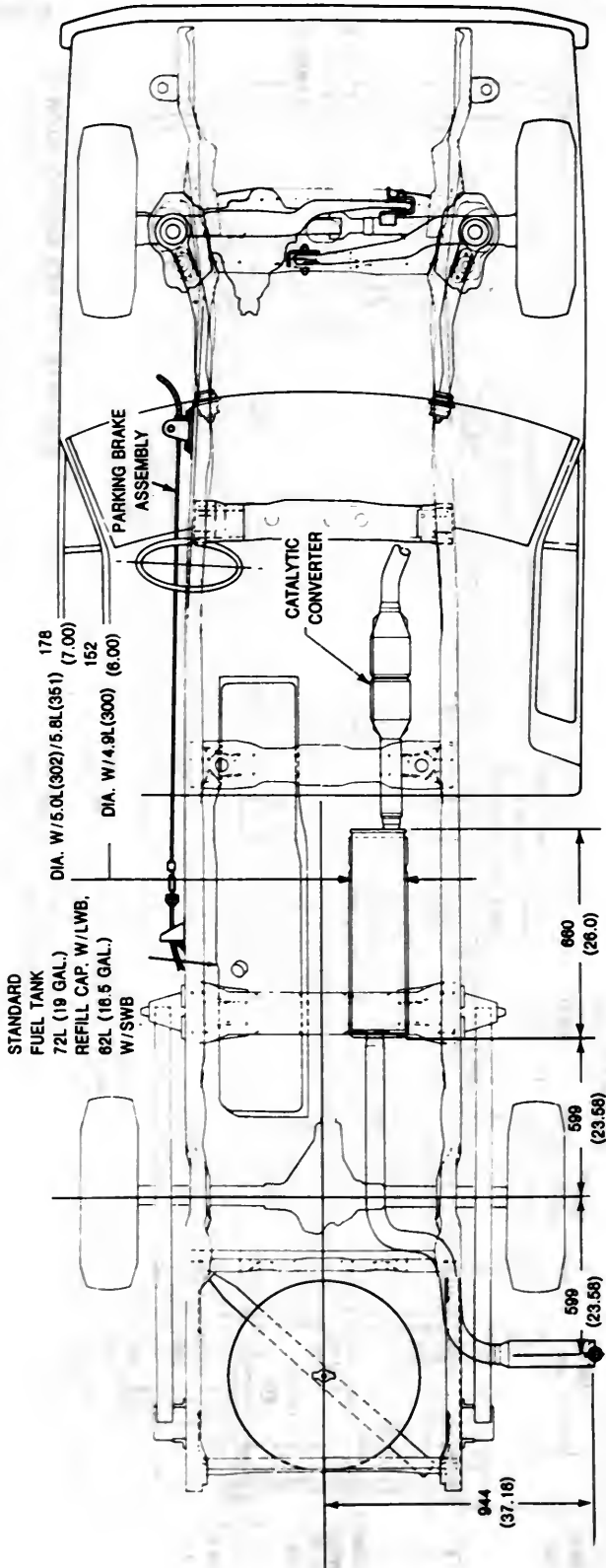
F-150-350 — Cont'd



UNDERBODY SPECIFICATIONS — F-150 REGULAR CAB (4x4)

F-150-350 — Cont'd

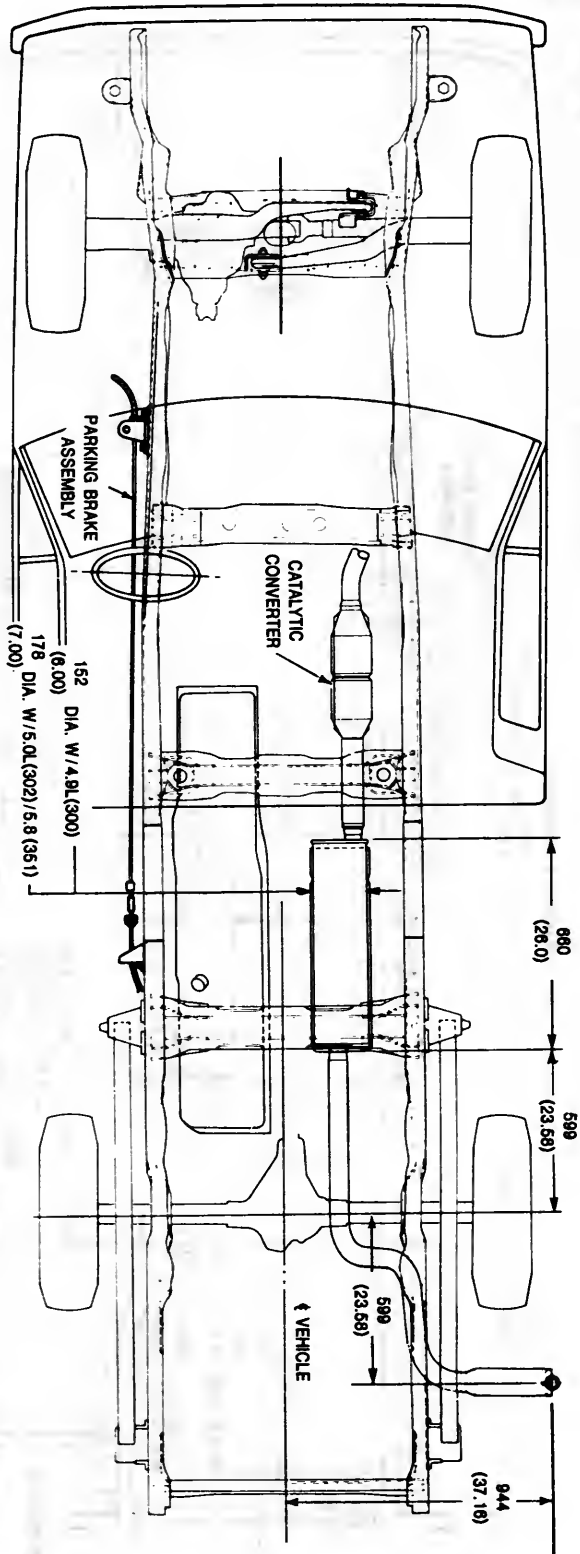
NOTE: CHASSIS CAB NOT AVAILABLE.



UNDERBODY SPECIFICATIONS — F-250 REGULAR CAB STYLESIDE (4x4)

F-150-350 — Cont'd

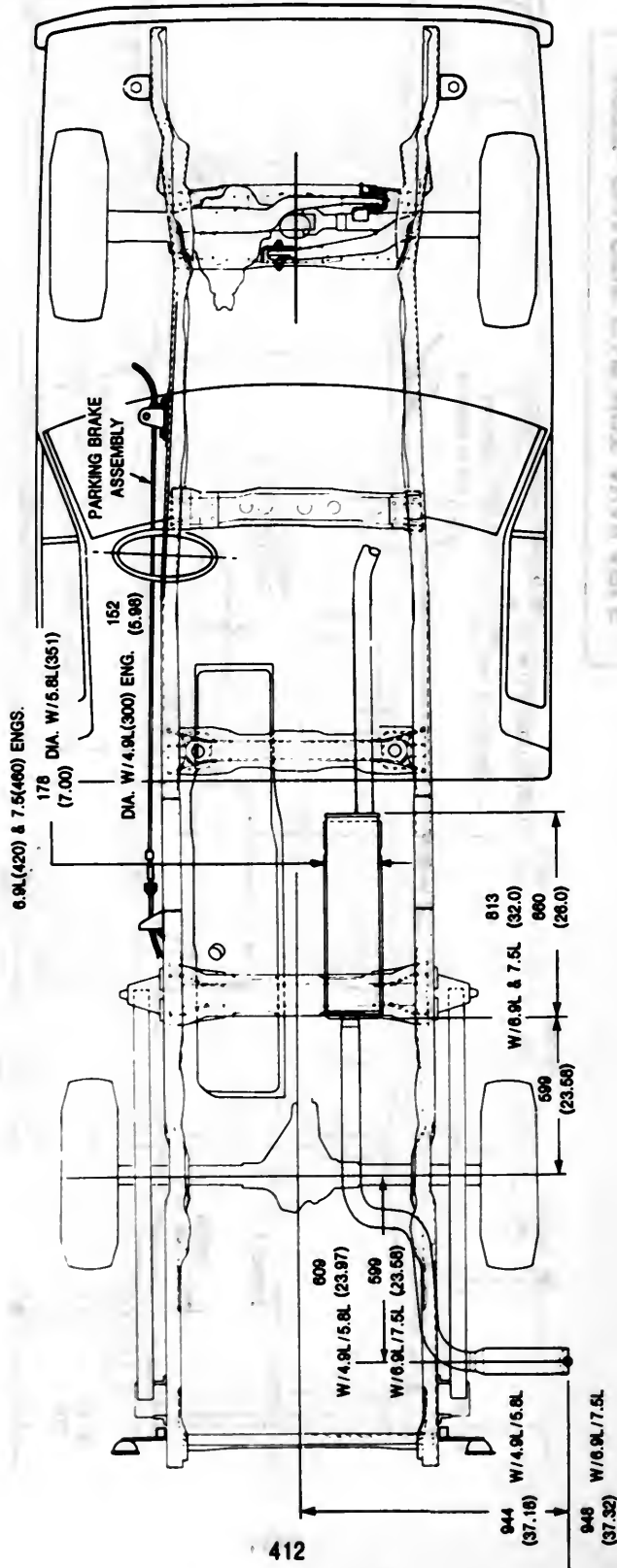
NOTE: CHASSIS CAB NOT AVAILABLE



Body — Sheet Metal

UNDERBODY SPECIFICATIONS — F-250 H.D./F-350 REGULAR CHASSIS CAB AND STYLESIDE (4x4)

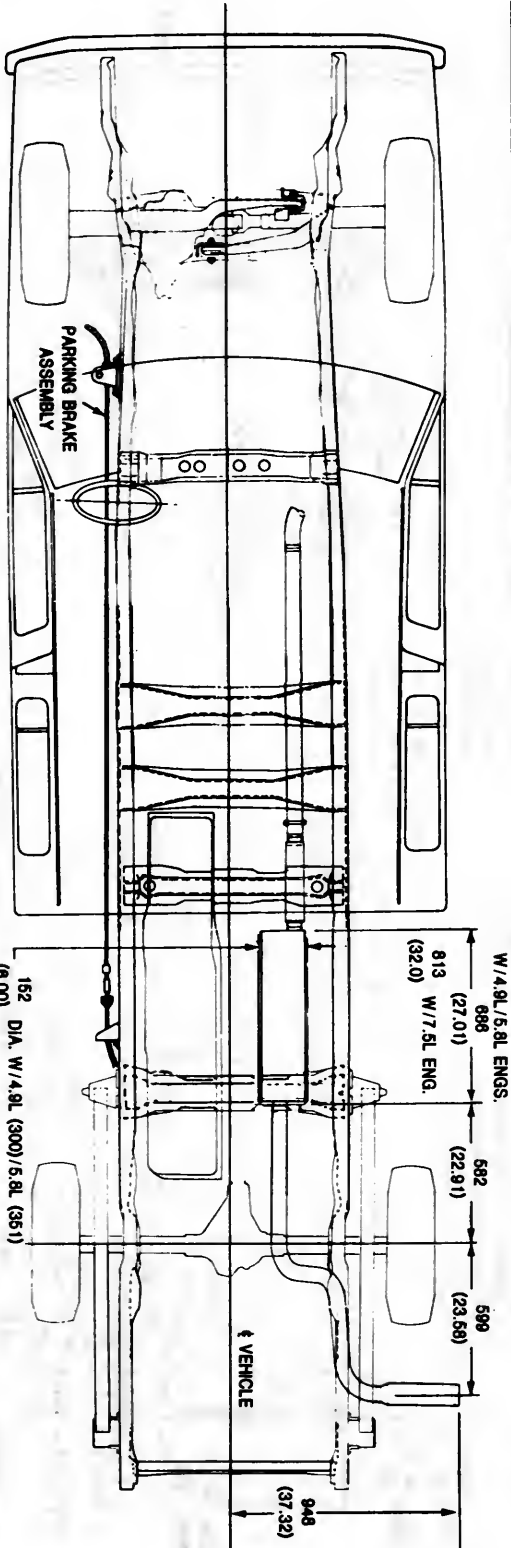
F-150-350 — Cont'd



UNDERBODY SPECIFICATIONS — F-350 CREW CAB (4x4)

F-150-350 — Cont'd

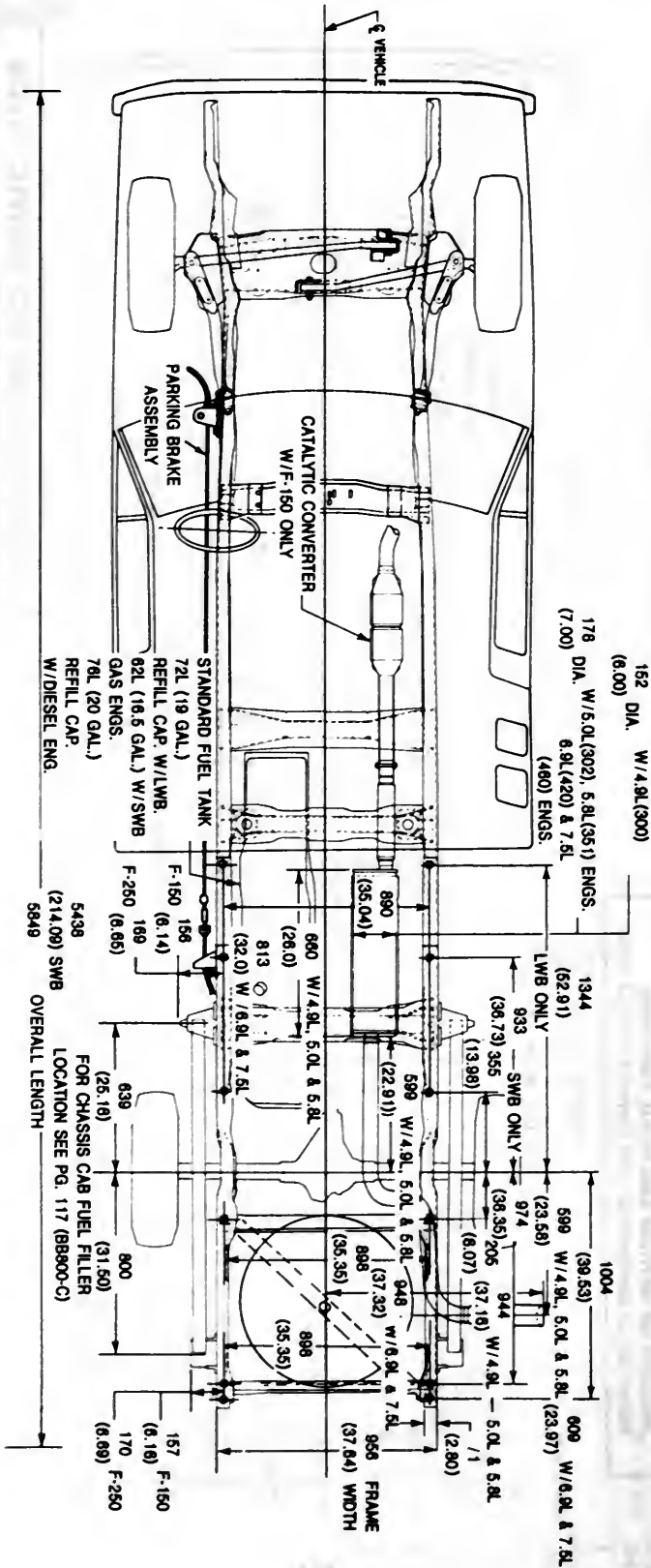
NOTE: CHASSIS CAB NOT AVAILABLE



NOTE: PROPER CLEARANCE MUST BE MAINTAINED TO THE PARKING BRAKE CABLE SYSTEM WHEN INSTALLING ANY ADDITIONAL EQUIPMENT. (I.e., TOOL BOXES, STAKE BODIES, ETC.)

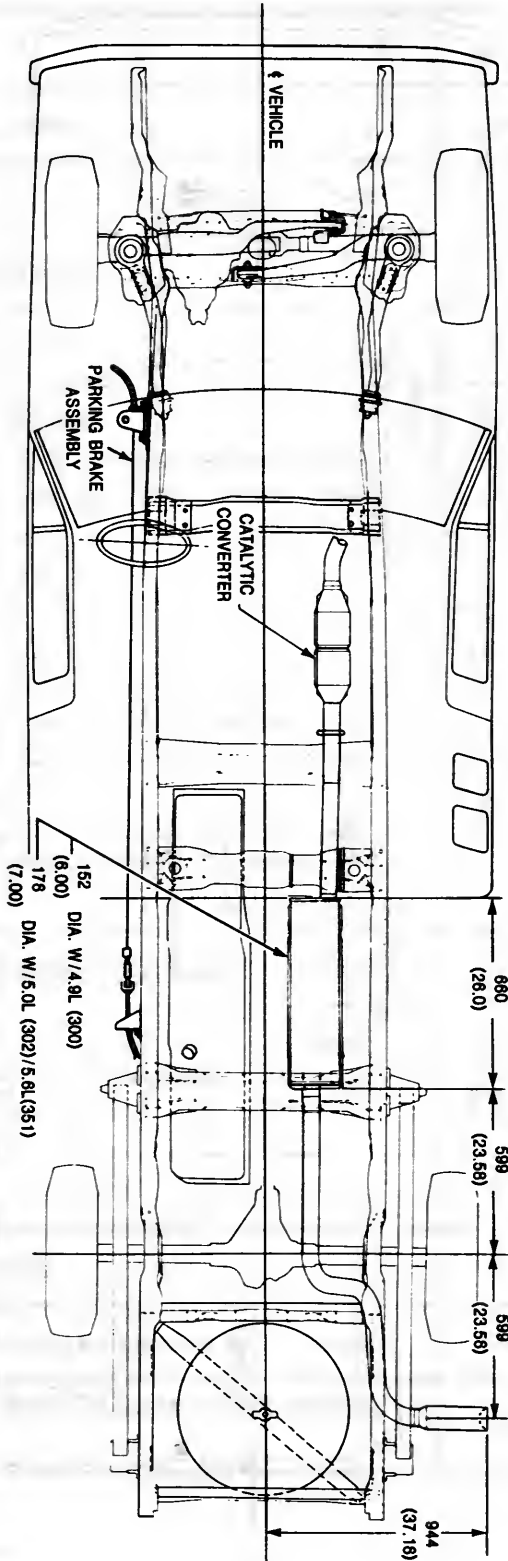
UNDERBODY SPECIFICATIONS — F-150/250 SUPERCAB STYLESIDE (4x2)

F-150-350 — Cont'd



UNDERBODY SPECIFICATIONS — F-150 SUPERCAB (4x4) — 155 INCH WHEELBASE

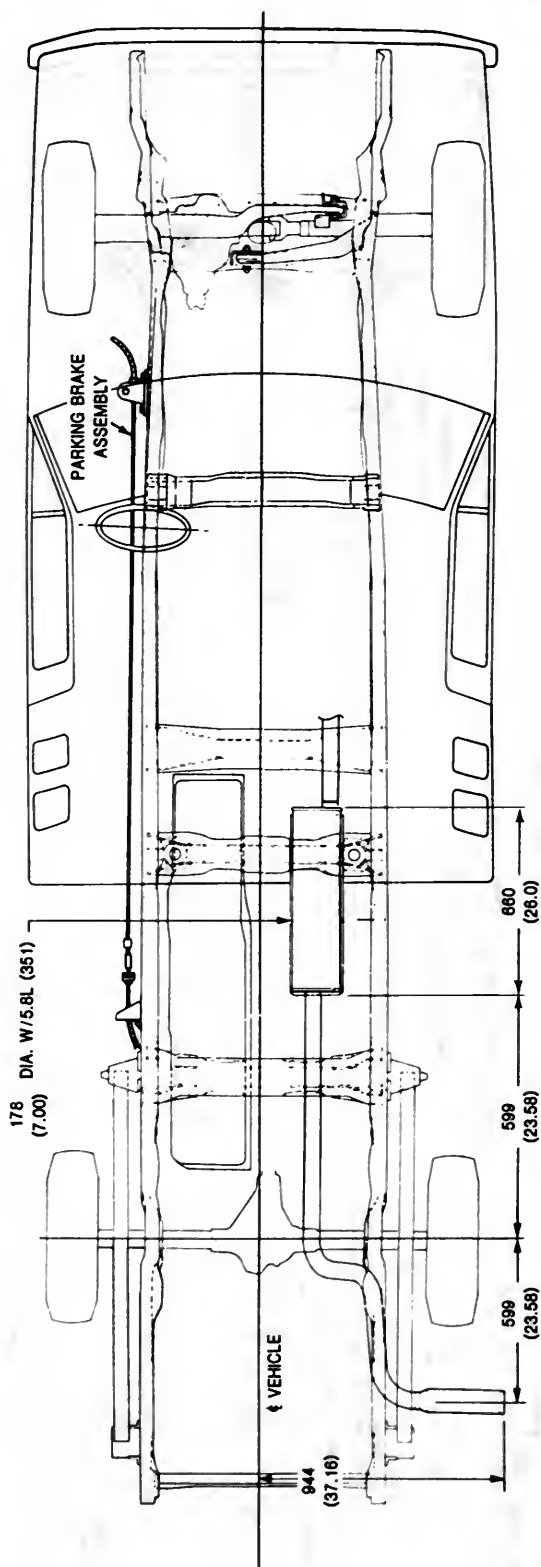
F-150-350 — Cont'd



NOTE:
FOR DIMENSIONS NOT SHOWN
SEE PG. 108 (B8016) (F-150 THRU 250 SUPERCAB)

UNDERBODY SPECIFICATIONS — F-250 SUPERCAB (4x4) — 155 INCH WHEELBASE

F-150-350 — Cont'd



TORQUE SPECIFICATIONS

F-150-350, Bronco

Description	N-m	ft-lb
Grille Attaching Screws	2-4	1.5-2.9
Latch Assembly Attaching Screw	9-14	7-10
Brace Attaching Screws	9-14	7-10
Front Fender Front Attaching Bolts	9-14	7-10
Front Fender Rear Attaching Bolts	22-34	17-25
Front Fender Bottom Attaching Bolts	45-70	34-51
Front Fender Reinforcement Attaching Bolts	45-70	34-51
Battery Brace Attaching Screws	10-15	8-11
Battery Bracket Retaining Nuts	2.3-4.5	20-40 (in-lb)
Rear Fender — F-350 (Dual Rear Wheels) — All Bolts	9-14	7-10
Rear Bumper Attaching Nuts	81-122	60-90
Rear Contour Bumper to Outer Bracket Retaining Nuts — Styleside	23-31	17-23
Rear Step Bumper to Outer Bracket Retaining Nuts — Bronco	34-54	25-40
	81-122	60-90
Body to Frame Bolts — F-150-350	68-94	50-70
Front Body to Frame Nut — F-150-350	37-50	27-37
Body to Frame Bolts — Bronco	55-67	40-50
Second Front Body Mounting Bracket Attaching Nut — Bronco	37-50	27-37
Under Frame Swing Away Spare Tire Carrier Support Attaching Nuts — F-150-350	51-67	37-50

Body — Sheet Metal

F-150-350, BRONCO — CONT'D

Torque Specifications — Cont'd

Description	N-m	Ft-Lb
Slide-Out Spare Tire Carrier — F-150-350		
Stop Bar Support Front Attaching Nut	82-128	60-95
Stop Bar Support Rear Attaching Nut	17-27	12-20
Spare Tire Carrier — Box Mounted — F-150-350		
Wing Nut	4.1-4.7	36-41 (in-lb)
Support Assembly Nuts	22-34	16-25
Spare Tire Carrier — Swing-Away — Bronco		
Wing Nut	2.8-3.3	25-30 (in-lb)
Bumper Retaining Nuts	8-13	6-10
Hinge Attaching Bolts	17-27	12-20
Support Assembly Attaching Bolts	17-27	12-20
Spare Tire Carrier — Inside — Bronco		
Support Bracket Attaching Screws	8-14	6-11
Support Arm Attaching Bolts	30-43	22-32

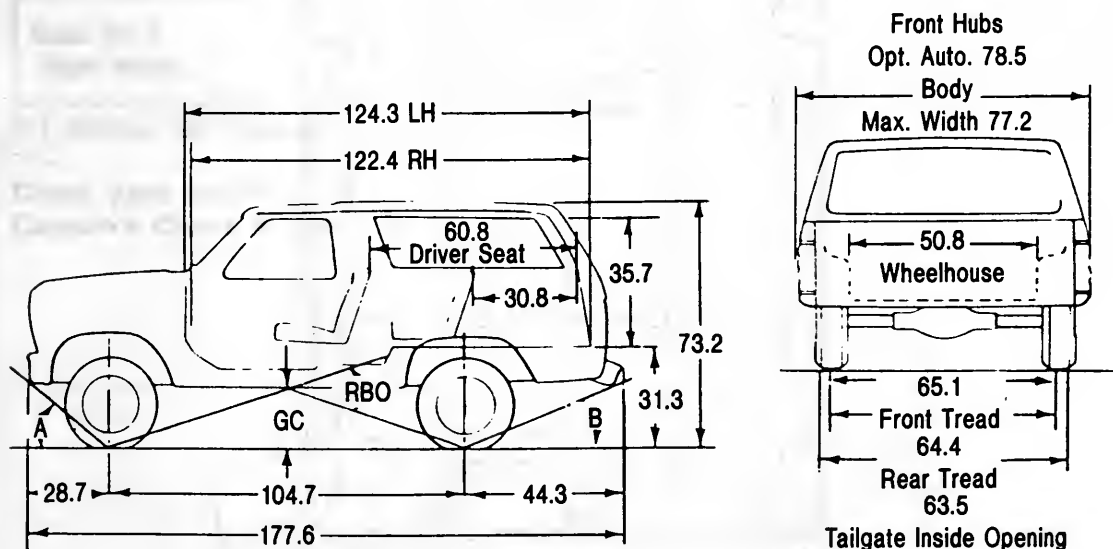
BRONCO

Seating and Cargo Volume

Seating Options	No. of Occupants	Minimum Weight Capacity(1) (lbs.)	Maximum Cargo Volume (cu. ft.)	Cargo Area Length(2) (in.)
Standard Front Bucket Seats or Optional Dual Captain's Chairs plus Rear Bench Seat(3)				
— Rear Seat Upright	5	850	51.8	30.8
— Rear Seat Folded	2	850	81.6	60.8
Front Bench Seat plus Rear Bench Seat(3)				
— Rear Seat Upright	6	1000	51.8	30.8
— Rear Seat Folded	3	1000	81.6	60.8

- (1) Minimum occupant, luggage and cargo combined weight capacity as provided by Computer-Selected GVWR for the specific vehicle.
- (2) Length from tailgate to nearest upright seat-back.
- (3) Rear bench seat delete available.

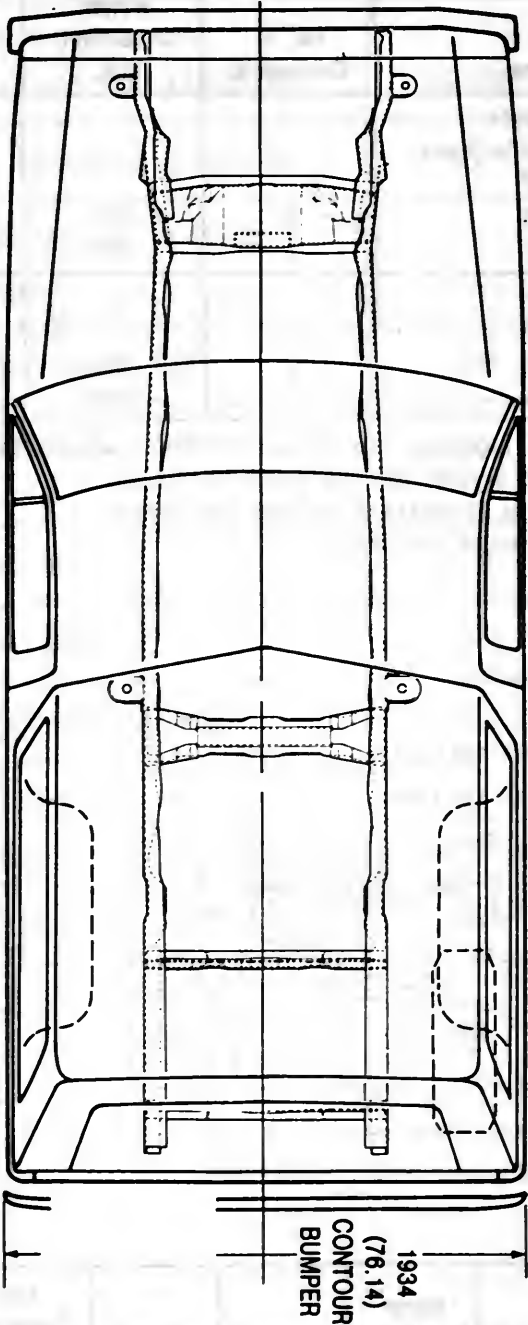
Vehicle Dimensions



Model		Approach Angle (A)	Ramp Breakover Angle (RBO)	Departure Angle (B)	Ground Clearance (GC)	Axle Clearance (AC)		Base Curb Weight (lbs.)		
Series	Occupants					Front	Rear	Front	Rear	Total
U-150	5	34.1°	20.2°	20.6°	9.1"	6.3"	6.6"	2143	2168	4311

BRONCO — CONT'D

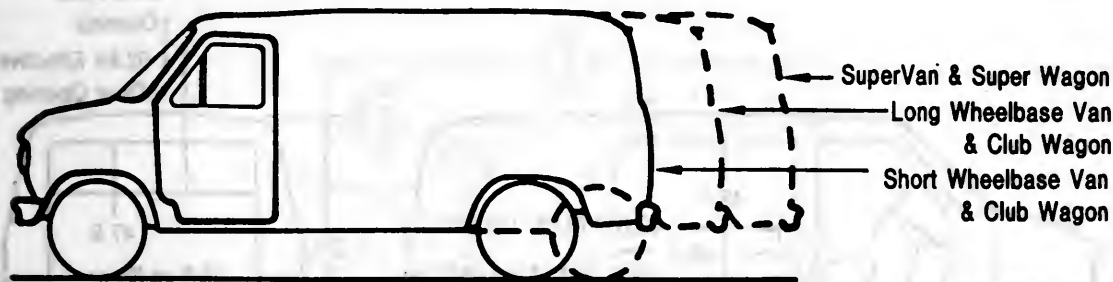
Underbody Specifications



Note: See F-150-350 section for torque specifications.

E-150-350

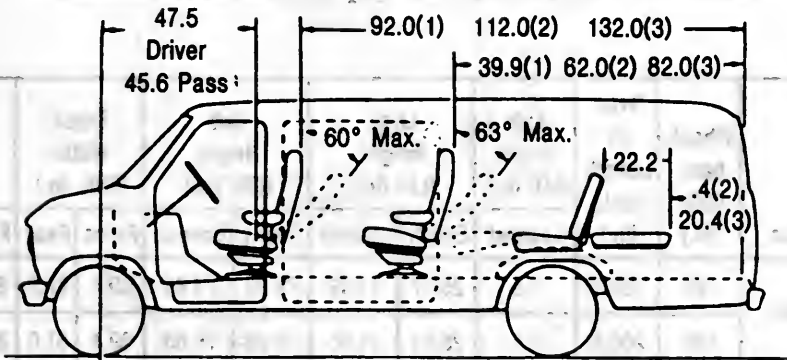
Cargo Van, Display Van, Window Van & Club Wagon Sizes



Model	Wheel-Base	Overall Length	Van Cargo Volume:(1) Hinged/Sliding Side Cargo Doors	Availability V-Vans/C-Club Wagon		
				E-150	E-250	E-350
Short Wheelbase Van & Club Wagon	124 in.	186.8 in.	252/257 cu. ft.	V-C	—	—
Long Wheelbase Van & Club Wagon	138 in.	206.8 in.	295/302 cu. ft.	V-C	V-C	V
Super Van & Super Wagon	138 in.	226.8 in.	339/347 cu. ft.	—	V	V-C

(1) Without RH Passenger Seat.

Cargo Vans and Wagons
Captain's Chairs & Seat/Bed Dimensions

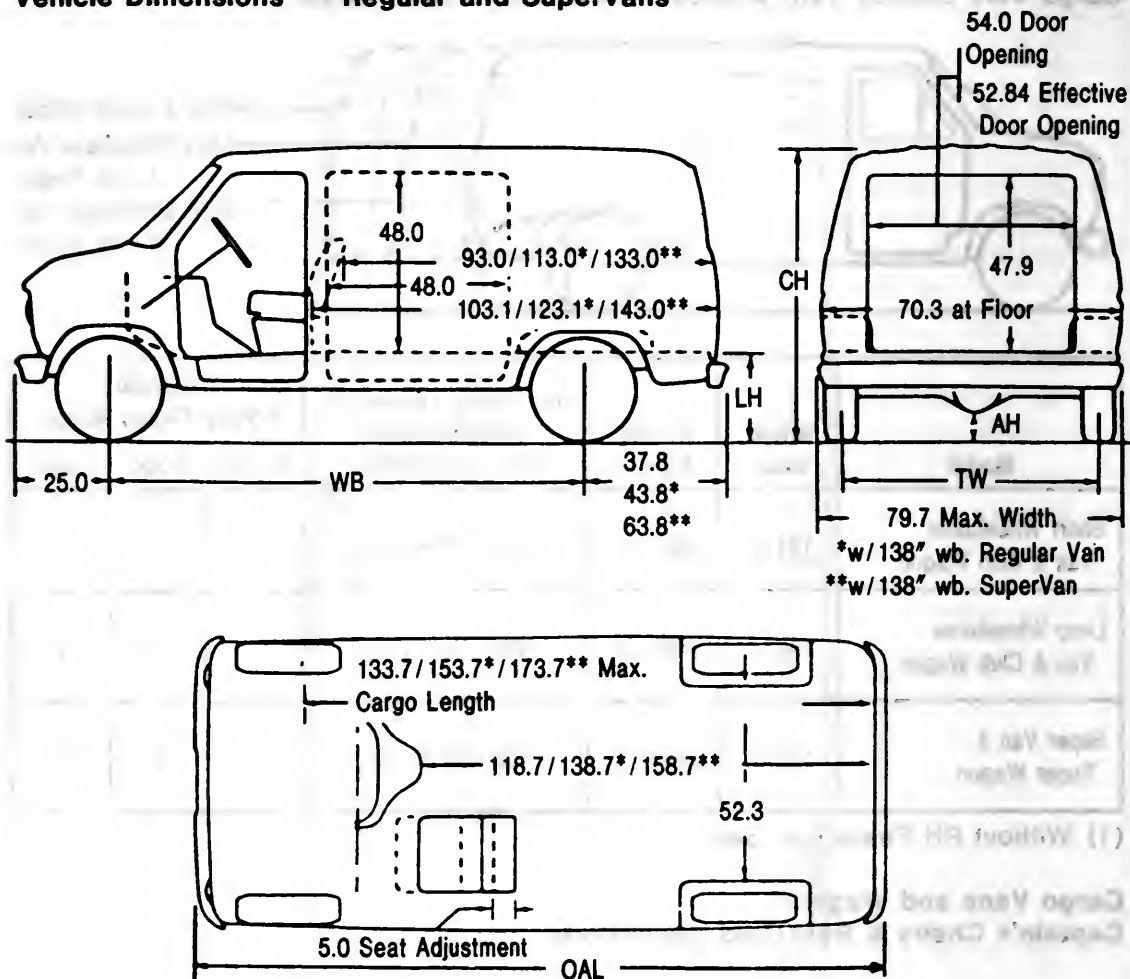


- (1) 124" wb. Van or Club Wagon.
- (2) 138" wb. Van or Club Wagon.
- (3) Super Van or Super Wagon.

Body — Sheet Metal

E-150-350 — CONT'D

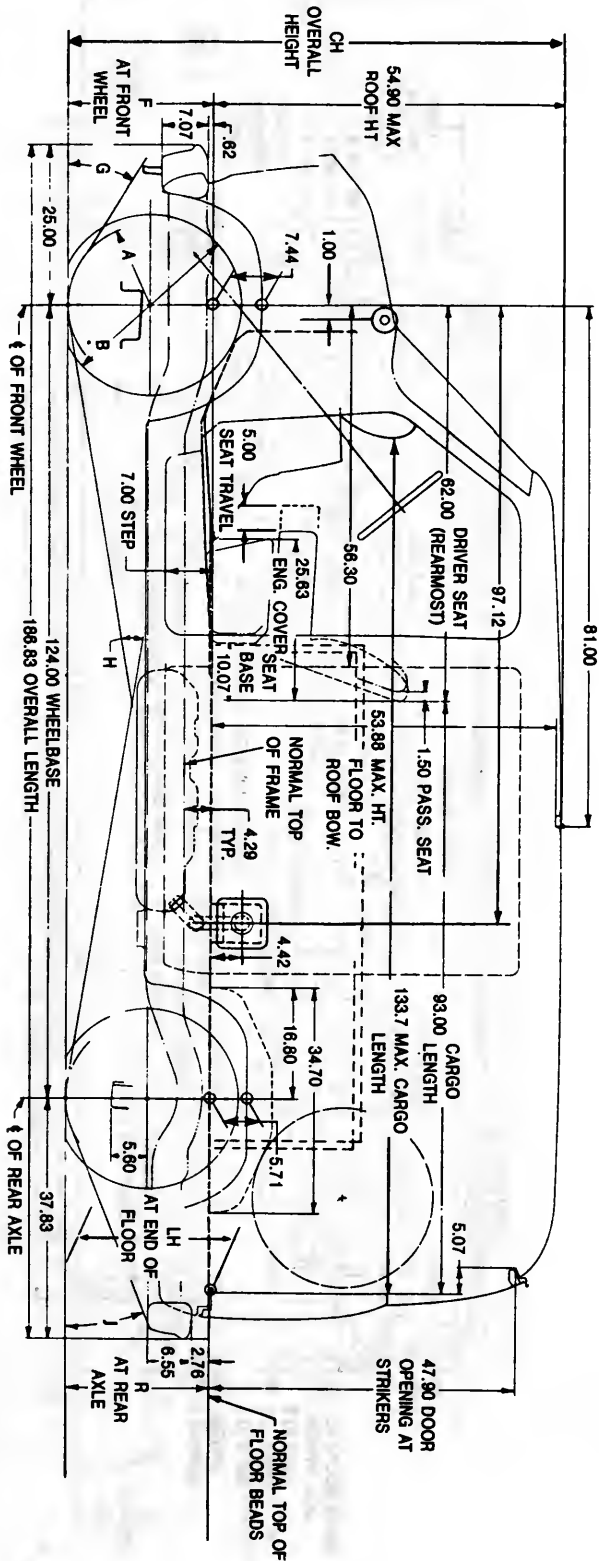
Vehicle Dimensions — Regular and SuperVans



Model	Series	Wheel- base (WB) (in.)	Over- all Length (OAL) (in.)	Axle Height (AH) (in.)		Load Height (LH) (in.)		Cab Height (CH) (in.)		Tread Width (TW) (in.)		Base Curb Weight (lbs.)		
				Loaded	Empty	Loaded	Empty	Loaded	Empty	Front	Rear	Front	Rear	Total
E-150	Regular	124	186.8	6.8	25.17	21.99	79.23	76.69	79.23	69.4	67.0	2136	1584	3720
		138	206.8	6.8	25.01	21.86	79.28	76.63	79.28	69.4	67.0	2092	1794	3886
	SuperVan	138	226.8	7.1	26.92	23.02	80.61	77.57	80.61	69.4	67.0	2058	1981	4039
E-250	Regular	138	206.8	7.4	29.1	24.7	82.8	79.4	82.8	68.4	66.0	2261	1885	4146
	SuperVan	138	226.8	8.0	29.5	25.5	83.1	80.1	83.1	68.4	66.0	2218	2256	4474
E-350	Regular	138	206.8	7.4	32.0	26.49	85.79	80.94	85.79	68.4	66.0	2343	2099	4442
	SuperVan	138	226.8	7.4	32.25	26.69	84.90	81.01	84.90	68.4	66.0	2298	2315	4613

BODY SPECIFICATIONS — E-150 CARGO VAN — 124 INCH WHEELBASE

E-150-350 — Cont'd

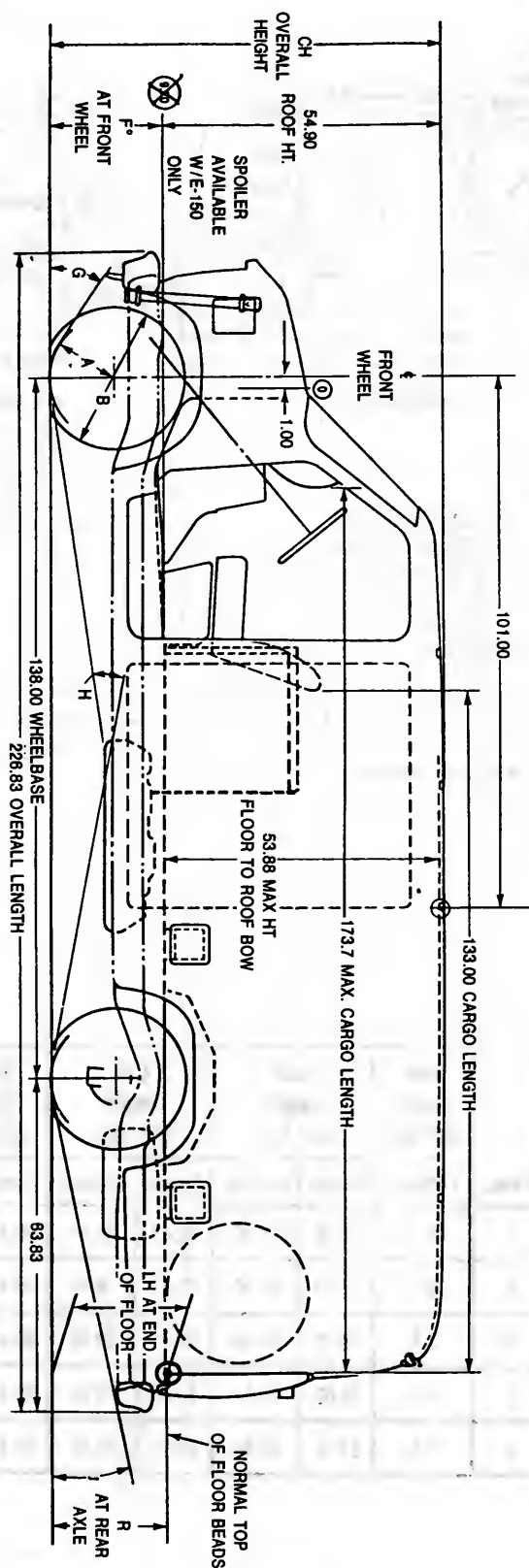


E-150-350 — Cont'd



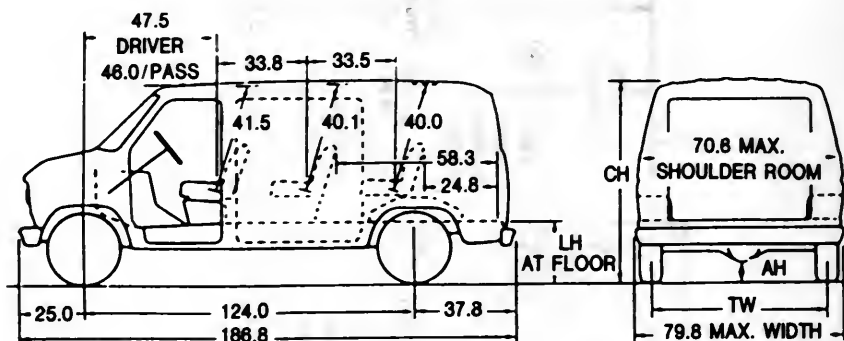
BODY SPECIFICATIONS — E-150-350 SUPER VAN — 138 INCH WHEELBASE

E-150-350 — Cont'd



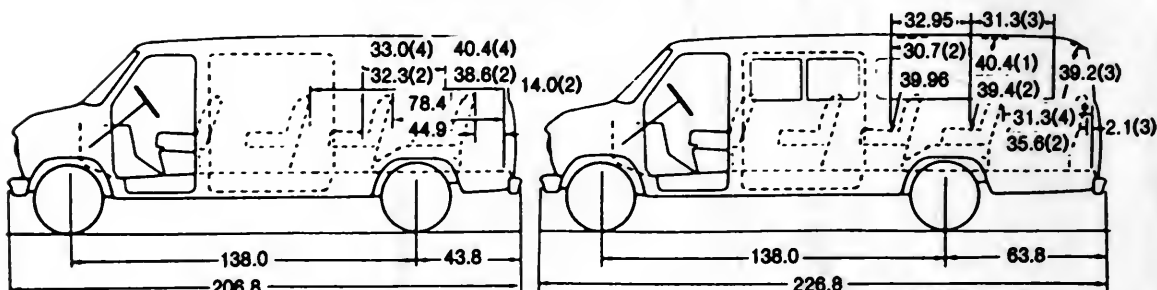
BODY SPECIFICATIONS — CLUB WAGON/SUPER WAGON

E-150-350 — Cont'd



SWB CLUB WAGON

ALL VANS & WAGONS



LWB CLUB WAGON

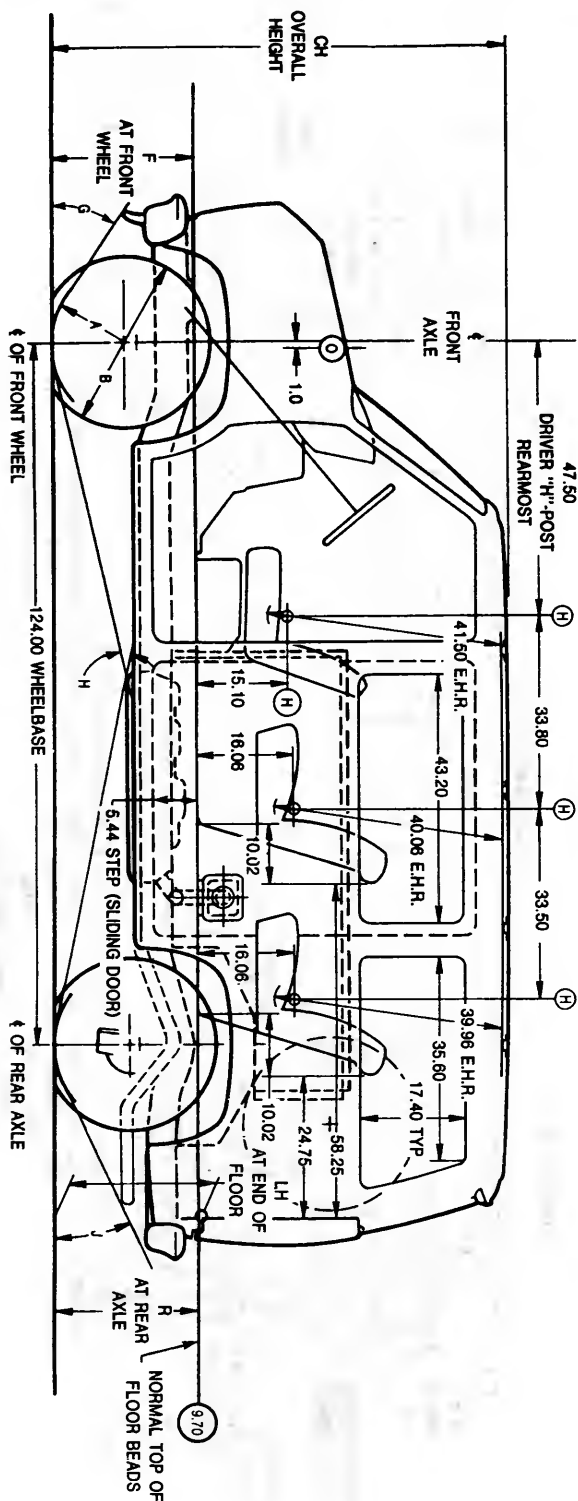
SUPER WAGON

- (1) w/11 and/or 15 Passenger
- (2) w/12 Passenger
- (3) w/15 Passenger
- (4) w/11 Passenger

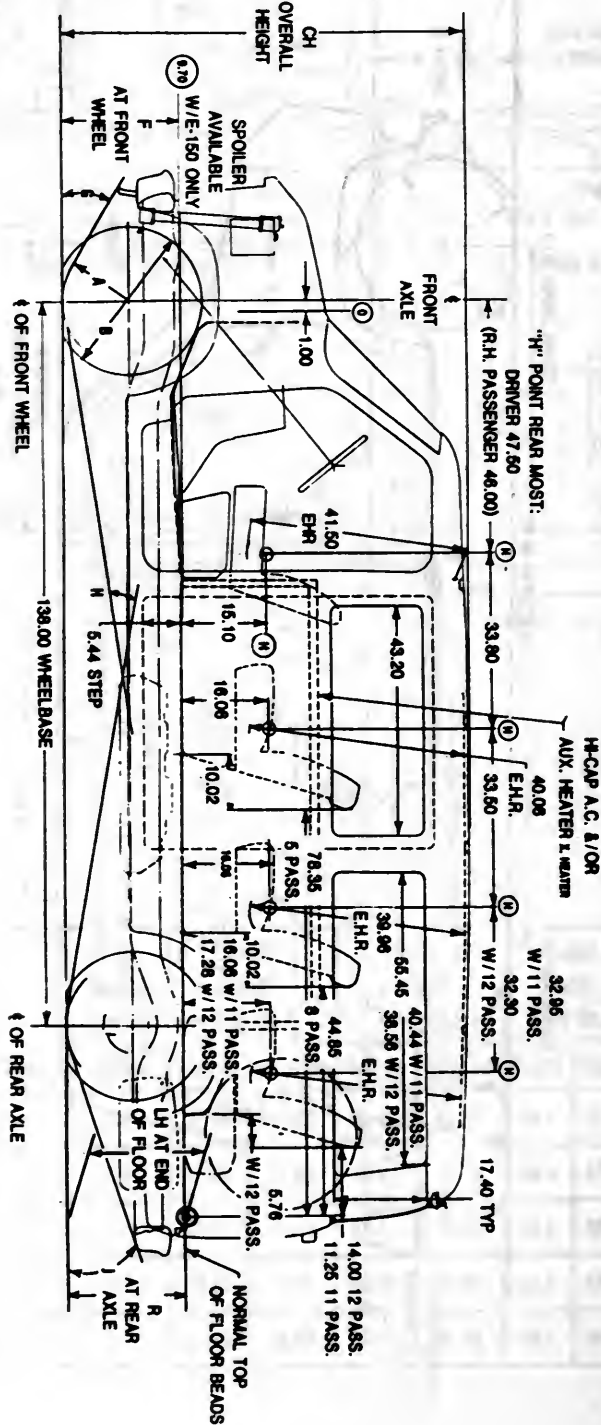
Model	Wheel-base (WB) (in.)	Pass.	Axle Height (AH) (in.)		Load Height (LH) (in.)		Cab Height (CH) (in.)		Tread Width (TW) (in.)		Base Curb Weight (lbs.)		
			Loaded	Empty	Loaded	Empty	Loaded	Empty	Front	Rear	Front	Rear	Total
E-150 Regular	124	5	8.8	27.19	21.80	80.41	76.81	80.41	69.4	67.0	2236	1711	3947
	138	5	8.8	27.29	21.80	80.81	76.79	80.81	69.4	67.0	2221	1913	4134
E-250 Regular	138	12	7.7	28.22	23.43	82.91	28.96	82.91	68.4	66.0	2403	2470	4873
E-250 Super	138	5	8.1	28.82	23.54	82.58	78.93	82.58	68.4	66.0	2338	2514	4852
E-350 Super	138	5	7.3	31.15	25.63	84.11	80.33	84.11	68.4	66.0	2385	2538	4923

BODY SPECIFICATIONS — E-150 CLUB WAGON — 124 INCH WHEELBASE

E-150-350 — Cont'd

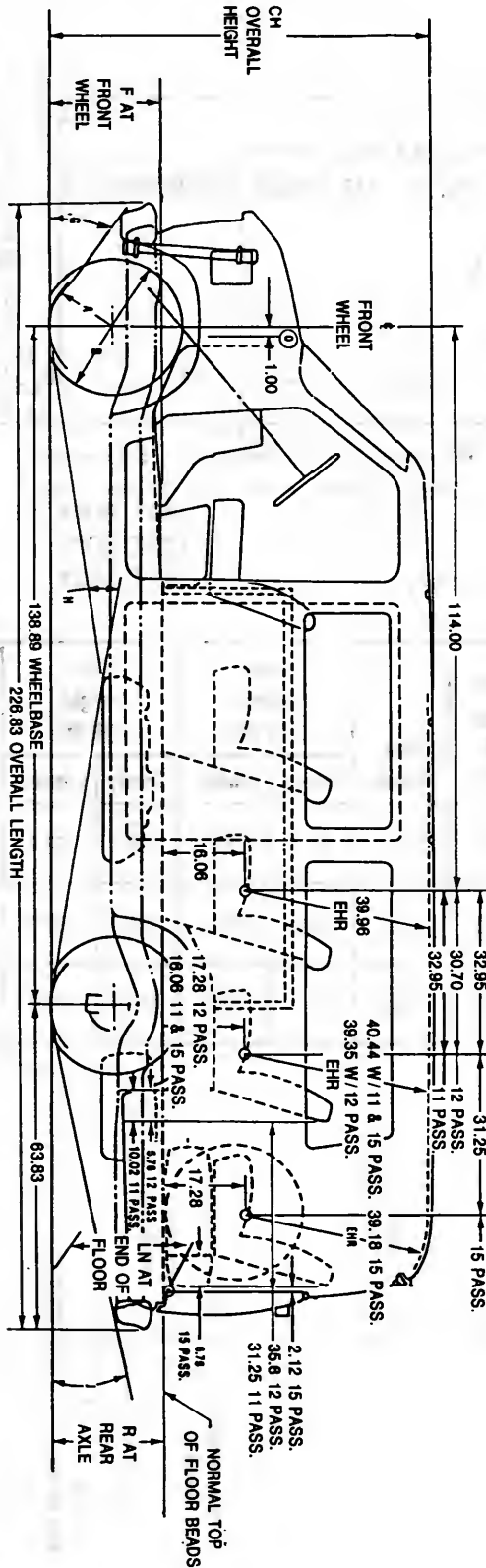


E-150-350 — Cont'd



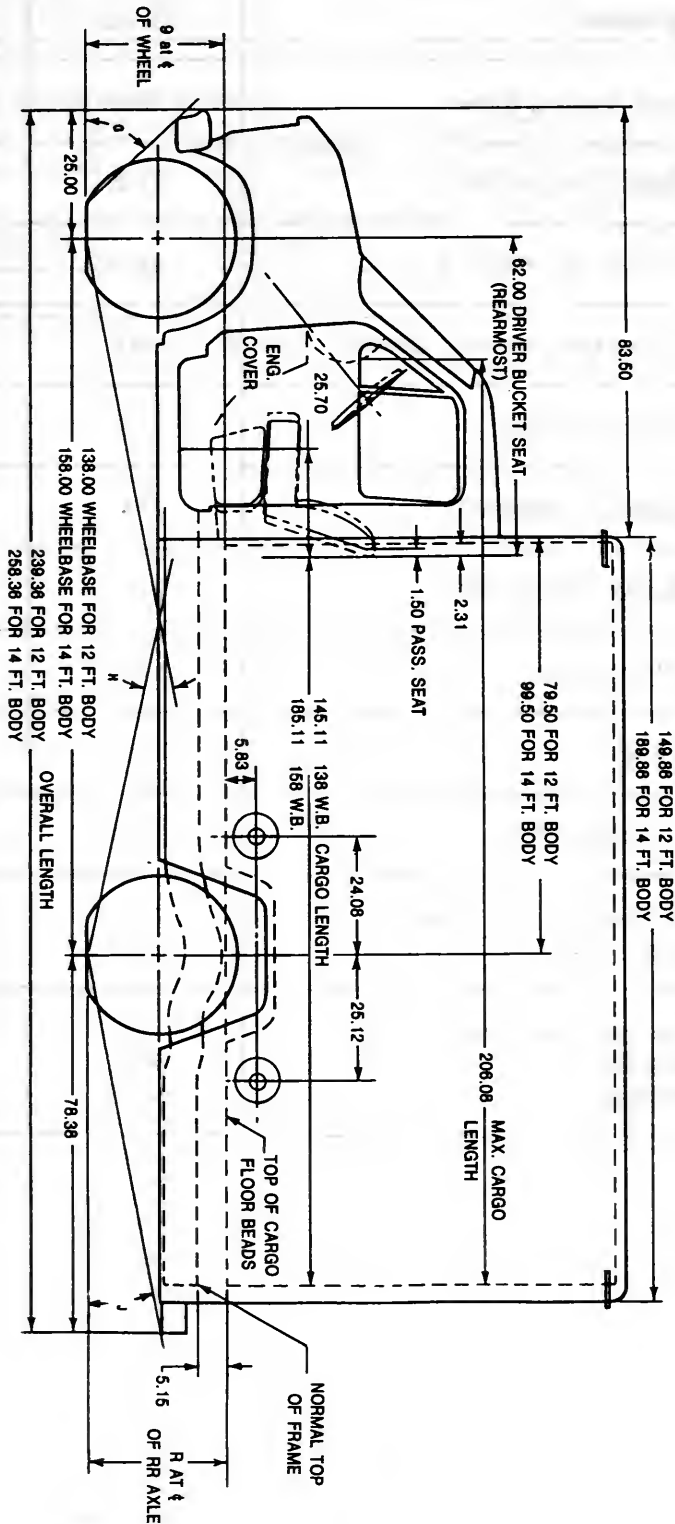
BODY SPECIFICATIONS — E-250/350 SUPER WAGON — 138 INCH WHEELBASE

E-150-350 — Cont'd



BODY SPECIFICATIONS — E350 PARCEL DELIVERY VAN — 138 INCH AND 158 INCH WHEELBASE

E-150-350 — Cont'd



E-150-350 — CONT'D**Torque Specifications**

Description	N-m	Ft-Lb
Grille Attaching Screws	0.9-2.25	8-20 (In-Lb)
Support and Panel Attaching Screws	10-14	7-11
Painted Front Bumper Attaching Nuts	61-88	45-65
Chrome Front Bumper Attaching Nuts	34-54	25-40
Grille Opening Lower Panel Attaching Screws	8-18	6-14
Front Fender Attaching Screws	17-27	12-20
Painted Rear Bumper Attaching Nuts	27-41	20-30
Chrome Rear Bumper Attaching Nuts	23-31	17-23
Step Bumper Attaching Nuts	82-122	60-90
Body to Frame Bolts	41-67	30-50
Upper Absorber Retaining Nut	9-10	6-8
#2 Body Mount Shield Attaching Screw — SuperVans, Super Wagons	8-10	6-8
Outside Mounted Spare Tire Carrier — E-150 Arm to Insulator Nut	44-51	32-38
Reinforcement Nuts	14-18	10-14

Refill Capacities

Air Conditioning Compressor

Compressor	Capacity		Ford Specification/ Ford Part Number
	MI.	Oz.	
FS-6	296	10	ESA-M2C31-A-500 Viscosity/C9AZ-19577-B

Air Conditioning Refrigerant System

Vehicle	Capacity (Pounds)	Ford Specification/Ford Part Number
Ranger	2.5-2.75	ESA-M17B2-A/D3AZ-19B519-A R-12, Motorcraft YN1-A, YN-7
F-150 — F-350 and Bronco	3.00-3.25	
E-150 — E-350	3.50-3.75 (Main)	
E-150 — E-350	4.25-4.50 (Main and Auxiliary)	

COOLING SYSTEM

Engine	Truck Model/Type	Equipment	Approximate Capacity		
			U.S. Quarts	Imperial Quarts	Liters
2.0L I-4	Ranger	4-Speed Manual — Standard Cooling	6.5	5.4	6.15
		4-Speed Manual — Extra Cooling	6.5	5.4	6.15
		4-Speed Manual — A/C	7.2	6.0	6.8
4-Speed Manual — Standard Cooling		6.5	5.4	6.15	
4-Speed Manual — Extra Cooling		6.5	5.4	6.15	
Automatic — Standard Cooling		6.5	5.4	6.15	
Automatic — Extra Cooling		6.5	5.4	6.15	
4-Speed Manual — A/C		7.2	6.0	6.8	
Automatic — A/C		7.2	6.0	6.8	
2.2L Diesel		4-Speed Manual — Standard Cooling	10.0	8.4	5
		4-Speed Manual — A/C Cooling	10.0	8.4	5
		4-Speed Manual — Super A/C Cooling	10.7	8.9	1.1
2.8L V-6		All Transmissions — Standard and Super w/o A/C	7.2	6.0	6
		All Transmission — A/C and Super with A/C	7.8	6.5	4
4.9L (300 CID) I-6	F-150/350 & Bronco	Manual Trans. — Standard and Extra Cooling	13	10	12
		Auto. Trans. — Standard and Extra Cooling	13	10	12
		Manual/Auto. Trans. — A/C and/or Super Cool	14	11	13
5.0L (302 CID) V-8	F-150/250 & Bronco	Manual/Auto. Trans. — Standard Cooling; Manual Trans. — Extra Cooling	13	10	12
		Auto. Trans. — Extra Cooling; Manual/Auto. Trans. — A/C Super Cool	14	11	13

Refill Capacities

COOLING SYSTEM

Engine	Truck Model/Type	Equipment	Approximate Capacity		
			U.S. Quarts	Imperial Quarts	Liters
5.8L (351 CID)	F-150/350 & Bronco	Manual Trans. — Standard Cooling & Extra Cooling	15	12.5	14.2
		Auto. Trans. — Standard and Extra Cooling	15	12.5	14.2
		Manual/Auto. Trans. — A/C	16	13.3	15
		Manual/Auto. Trans. — Super Cooling	16	13.3	15
4.9L (300 CID)	E-150 — E-350	With Manual and Automatic Trans. Without A/C (1) (2)	15	12.5	14.2
		With A/C (1) (2)	17.5	14.5	16.6
5.0L (302 CID) V-8	E-150 — E-350	Standard Manual Trans. — Extra Cooling (w/o A/C)	15	12.5	14.2
		Standard Manual Trans. with A/C	17.5	14.5	16.6
		Super Cooling Manual Trans.	18.5	15.4	17.5
		Automatic Trans. — Extra Cooling — w/o A/C	17.5	14.5	16.6
		Automatic Trans. with ⁴⁴⁷ and/or Super Cool	18.5	15.4	17.5
5.8L-W (351 CID)	E-150 — E-350	Manual Trans. — with A/C (1) (2)	15	12.5	14.2
		Automatic Trans. Standard or Extra w/o A/C (1) (2)	20	16	19
		Automatic Trans. with A/C and/or Super Cool	21	17.5	20
6.9L Diesel	F-250 HD, F-350, E-250 HD, E-350	All Options	31.0 (3)	26.0	29.3
7.5L (460 CID)	F-250 HD, F-350	Manual Trans. — Extra Cooling	16.5	14.0	15.5
		All Other Options	17.5	15.0	17.0
7.5L (460 CID)	E-250 — E-350	All Options (1) (2)	28	23.3	26

(1) Add 1 U.S. quart (or equivalent Imperial quarts or liters) for heater.

(2) Add 1.8 U.S. quarts (or equivalent Imperial quarts or liters) for auxiliary heater (E-150 — E-350 models).

(3) Include 5 quarts (or equivalent Imperial quarts or liters) in reservoir bottle.

Refill Capacities

ENGINE OIL — ALL EXCEPT 2.0L AND 2.8L GASOLINE ENGINES

Engine Displacement	Approximate Engine Oil Capacity					
	U.S. Quarts With Filter Change	U.S. Quarts Without Filter Change	Imp. Quarts With Filter Change	Imp. Quarts Without Filter Change	Liters With Filter Change	Liters Without Filter Change
4.9L (300 CID) I-6	6	5	5	4.2	5.6	4.7
5.0L (302 CID) V-8	6	5	5	4.2	5.6	4.7
5.8L (351 CID) W-V-8	6	5	5	4.2	5.6	4.7
7.5L (460 CID) V-8	6	5	5	4.1	5.6	4.7
6.9L Diesel	10	9		9.7		8.5

Engine Oil Refill Capacities 2.0L and 2.8L Gasoline Engines

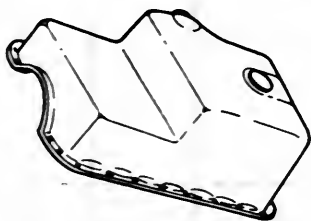
Engine	U.S. Quarts	Imperial Quarts	Liters
2.0L (122 CID)	5.0	4.2	4.7
2.3L (140 CID)②	5.0	4.2	4.7
2.3L (140 CID)③	6.0	5.0	5.6
2.8L (171 CID)	5.0	4.2	4.7

① Includes one quart for filter replacement.

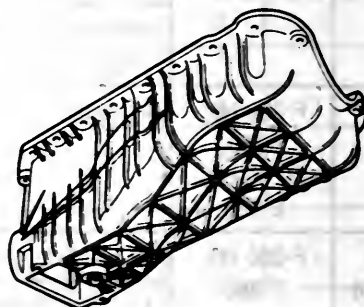
② With cast aluminum oil pan see below.

③ With stamped steel oil pan see below.

NOTE: Refer to checking engine oil level for oil pan identification.



③ FRONT OF VEHICLE ➡



② FRONT OF VEHICLE ➡

NOTE: Vehicles equipped with a 2.3L engine will have one of the two oil pans shown. When changing oil, the refill capacity for the stamped steel pan 3 is 6 quarts (including one quart for filter replacement).

Refill Capacities

FUEL TANKS

Ranger

Vehicle	Location	Tank Capacity
Ranger	Midship LWB	57.54 (15.2)
	Midship SWB	64.35 (17.0)
	Aft of Rear Axle	49.2 (13.0)
Bronco II	Aft of Rear Axle	87.05 (23.0)

E-, F-150-350, Bronco

FUEL TANKS

Series	Wheelbase (in.)	Location	Tank Capacity gal. (liters)	Available Tank Combinations(1)
STANDARD FUEL TANKS				
Ranger 4x2/4x4	107.9	Midship	15.2 (57.5)	A
Ranger 4x2 Pickup	113.9	Midship	15.2 (57.5)(6)	
Ranger 4x2 Chassis Cab	113.9	Midship	15.2 (57.5)(11)	
Ranger 4x4	113.9	Midship	17 (64)	
Bronco II	94	Behind rear axle(10)	23 (87)	—

Refill Capacities

E-, F-150-350, Bronco

FUEL TANKS — CONT'D				
Series	Wheelbase (in.)	Location	Tank Capacity gal. (liters)	Available Tank Combinations
STANDARD FUEL TANKS — CONT'D				
F-150 incl. 4x4	116.8	Midship	16.5 (82)	B
F-150/250 SuperCab	138.8	Midship		
F-150/250/350 incl. 4x4	133	Midship(2)	19 (72)(5)	
F-150/250 SuperCab incl. 4x4	155	Midship		
F-250/350 Chassis Cab	136.8 160.8	Midship		
F-350 Crew Cab 4x2/4x4	168.4	Midship		
Bronco	104.7	Behind rear axle(10)	32 (121)	—
E-150 Vans & Wagons	124	Midship	18 (68)	—
E-150/250/350 Van, Wagons & Other Vehicles	138(7) 158	Behind rear axle	22.1 (83)	C
OPTIONAL AUXILIARY FUEL TANKS				
Ranger 4x2/4x4	107.9 113.9	Behind rear axle	13 (49.2)	A
All F-Series	All(2,3,4)	Behind rear axle	19 (72)	B
F-350 DRW Chassis Cab	136.8 160.8	Midship	20 (75)(8)	—
E-150/250/350 Vans, Wagons & Other Vehicles	138 158	Midship	18 (68)(9)(12)	C

- (1) Matching code letters under "AVAILABLE TANK COMBINATIONS" indicates standard and optional auxiliary fuel tanks which can be used in combination.
- (2) 19-gallon behind-rear-axle fuel tank standard with F-350 dual rear wheel Style-side model, with midship tank available as optional auxiliary fuel tank.
- (3) 19-gallon behind-rear-axle fuel tank available with 136.8", 160.8" and 168.4" wheelbase models as auxiliary tank in addition to standard tank.
- (4) Not available with Flareside pick-up, or with F-350 DRW Chassis Cab 20 Gal. outside-of-frame tank.
- (5) 20-gallon tank with 6.9L V-8 diesel engine.
- (6) 17-gallon tank with optional automatic transmission and 2.3L I-4 engine, or with 2.2L diesel or 2.8L V-6 engines.
- (7) 19.6 gallon tank with 4.9L engine and 4-speed manual overdrive transmission, vans only.
- (8) In lieu of standard tank.
- (9) 17.5 gallon tank w/7.5L engine.
- (10) Includes skid plate.
- (11) 17 gallon tank with 2.8L V-6 engine.
- (12) Not available with Chassis Cab models.

Refill Capacities

Manual Steering Gear

Vehicle	Capacity		Ford Specification/ Ford Part Number
	MI.	Oz.	
Ranger	300	10.2	ESW-M1C87-A/ C3AZ-19578-A
F-150-350 (4x2) E-150-350	320	11(1)	

(1) \pm 1 oz. (29 ml.)

Power Steering Gear

Vehicle	Capacity(1)		Ford Specification/ Motorcraft Part Number
	Liters	Pints	
All	0.75	1.6	ESW-M2C33-F/ XT-1-QF or XT-1-DF

(1) Included in pump reservoir fill.

Power Steering Pump

Refill Capacity — All Approximately 1.7 liters (3.6 pints)

Rear and Front Driving Axles

Ranger

Axle	Liters	Pints	Lubricant Ford Specification/ Ford Part Number
Rear — 6.75 Inch Conventional	1.56	3.3	ESP-M2C154-A/ EOAZ-19580-A
Rear — 7.5 Inch Conventional	2.37	5.0	
Rear — 7.5 Inch Limited Slip(1)	2.37	5.0	
Front Drive — Dana Model 28(1)	0.45	1.0	ESW-M2C105-A/ C6AZ-19580-E

Refill Capacities

REAR AND FRONT DRIVING AXLES — CONT'D

F-150-350, Bronco (Rear Axles, Except as Indicated)

Axle Model	Vehicle	Approximate Capacity		
		U.S. Pints	Imperial Pints	Liters
Ford Axle — 8.8 Inch Ring Gear	F-150, Bronco(3)	5.5	4.6	2.6
	E-F-250	5.5	4.6	2.6
Ford Axle — 9.0 Inch Ring Gear	F-150(3)	5.5	4.6	2.6
	E-150(3)	5.5	4.6	2.6
Dana 44 IFS — Front(1)	F-150 (4x4), Bronco	3.6	3.0	1.7
Dana 44 IFS-HD — Front(1)	F-250 (4x4)	3.6	3.0	1.7
Dana 50-IFS — Front(1)	F-350 (4x4)	3.8	3.2	1.8
Dana 60 — Rear(2)	E-F-250 — 350 (4x2)	6.0	5.0	2.8
Dana 60 — Rear(2)	F-250 — 350 (4x4) Under 8500 GVW	6.0	5.0	2.8
Dana 60-5 — Rear(2)	F-250 4x2/4x4 Over 8500 GVW, F-350 — SRW	6.0	5.0	2.8
Dana 61-1 — Rear(2)	E-350 SRW	6.0	5.0	2.8
Dana 61-2 — Rear(2)	E-250, F-250 (4x2) (4x4) Under 8500 GVW	6.0	5.0	2.8
Dana 70 — Rear(2)	F-350 (4x2)	6.5	5.5	3.0
Dana 70 — Rear(2)	E-350	6.5	5.5	3.0
Dana 70 HD(2)	F-350 (4x2)	7.4	6.1	3.8

- (1) Add 2 U.S. ounces of Friction Modifier, C8AZ-19B546-A (EST-M2C118-A) or equivalent to Dana Front Drive Axle with limited slip differential.
- (2) Add 4 U.S. ounces of Friction Modifier, C8AZ-19B546-A (EST-M2C118-A) or equivalent to Dana rear axles with limited slip differentials.
- (3) Add 4 U.S. ounces of Friction Modifier, C8AZ-19B546-A (EST-M2C118-A) or equivalent to Ford locking rear axles.

Refill Capacities

REAR AND FRONT DRIVING AXLES — CONT'D

E-, F-150-350, Bronco

Transmission Type and Make	Approximate Capacities		
	U.S. Measure (Quarts)	Imperial Measure (Quarts)	Liters
3-Speed (Ford) (1)	1.75	1.4	1.6
4-Speed (Warner T-18) (1)	3.5	2.75	3.3
4-Speed (New Process 435) (1)	3.5	2.75	3.3
4-Speed (New Process 435 without Extension) (1)	3.25	2.6	3.0
4-Speed Overdrive (1)	2.25	1.85	2.1
C-5 Automatic (4x2) (4) (3)	11.5	9.2	10.9
C-6 Automatic (4x2) (4) (2)	11.9	9.4	11.2
Automatic Overdrive (4x2) (4) (2)	12	10.1	11.7
C-6 Automatic (4x4) (4) (2)	13.5	10.8	12.7
4-speed (Warner T-19B)	3.5	2.75	3.3

- (1) When adding fluid, use standard Transmission Lube ESP-M2C83-C (D8DZ-19C547-A), or equivalent.
- (2) When adding fluid, use Motorcraft Automatic Transmission Fluid DEXRON® II (XT-2-QDX), or equivalent.
- (3) When adding fluid, use Motorcraft Automatic Transmission Fluid — Type H or equivalent which meets ESP-M2C166-H (XT-4-H).
- (4) Always use automatic transmission fluid dipstick to determine exact fluid requirement.

Refill Capacities

Transfer Case — 4x4

Model — Vehicle	Capacity			Fluid
	U.S. Pints	Imp. Pints	Liters	Ford Specification/ Motorcraft Part Number
Borg-Warner 13-50 — Ranger	3.0	2.5	1.4	DEXRON® II/ XT-2-QDX
New Process Gear 208 — F-150/250, Bronco	7	5.5	3.3	
Borg-Warner 13-45 — F-250/350	6.5	5.4	3.1	

Transmission

Ranger

Transmission Type and Make	Approximate Capacities		
	U.S. Measure	Imperial Measure	Liters
4-5-Speed Manual (1)	(Pints) 3.0	(Pints) 2.5	1.4
Automatic, C-3 (2)	(Quarts) 8.0	(Quarts) 6.5	7.6
Automatic, C-5 (4x2) (3)	(Quarts) 7.5	(Quarts) 6.0	7.1
Automatic, C-5 (4x4) (3)	(Quarts) 7.8	(Quarts) 6.2	7.4

- (1) When adding fluid, use standard Transmission Lube ESP-M2C83-C (D8DZ-19C547-A), or equivalent.
- (2) When adding fluid, use Motorcraft Automatic Transmission Fluid DEXRON® II (XT-2-QDX), or equivalent.
- (3) When adding fluid, use Motorcraft Automatic Transmission Fluid — Type H ESP-M2C166-H (XT-4-H), or equivalent.

Fluid and Lubricant Specifications

ALL VEHICLES

Item	Ford Part No.	Part Name	Ford Specification
Accelerator Control Kickdown (Automatic 4.9L Six Cylinder) — E-100-350	C1AZ-19590-B	Multi-Purpose Lubricant	ESA-M1C75-B
Accelerator Throttle Lever Ball Stud	C1AZ-19590-B	Multi-Purpose Long Life Lubricant	ESA-M1C75-B
Air Conditioning Compressor	C9AZ-19577-B (Motorcraft YN-2)	Refrigerant Oil	ESA-M2C31-A 500 Viscosity
Air Conditioning System	D4AZ-19B519-A Motorcraft YN-1A, YN-7	R-12 Refrigerant	ESA-M17B2-A
Body Hinges, Latches, Door Striker Plates and Rotors, Seat Tracks, Door Checks and Tracks, and Hood Latch and Auxiliary Latch	D7AZ-19584-A	Polyethylene Grease	ESR-M1C159-A
Brake and Clutch Pedal Pivots and Clevises	—	Engine Oil SAE-10W	ESE-M2C153-C
Brake, Hydraulic Clutch Master Cylinders	C6AZ-19542-A or -B	Heavy Duty Brake Fluid	ESA-M6C25-A
Disc Brake Caliper Rails	D7AZ-19590-A	Disc Brake Caliper Slide Grease	ESA-M1C172-A

Fluid and Lubricant Specifications

ALL VEHICLES

Item	Ford Part No.	Part Name	Ford Specification
Distributor Bushing Oil Cup	—	Engine Oil SAE-10W	ESE-M2C153-C
Door Weatherstrips	D7AZ-19553-A	Silicone Lube — Spray	ESR-M13P4-A
Drive Shaft, Universal Joints (if equipped with fitting) and Slip Spline	C1AZ-19590-B	Multi-Purpose Long Life Lubricant	ESA-M1C75-B
Engine Coolant — All Engines	E2FZ-19549-A	Cooling System Fluid	ESE-M97B44-A
Engine Oil — Gasoline Engines	XO-5W30-QSP XO-10W40-QSP XO-10W30-QP XO-20W40-QP XO-30QSD XO-15W40-QSD	Motorcraft Motor Oil 5W30 Super Premium 10W40 Super Premium 10W30 and 20W40 Premium SAE 30 and 15W 30 Super Duty	ESE-M2C153-C and API SF, or SF/CC or SF/CD
Engine Oil — Diesel Engine	XO-10W30-QP XO-20W40-QP XO-30-Q	Motorcraft Motor Oil 10W30 and 20W40 Premium SAE 30 Single Weight	ESE-M2C153-B and API SF/CC
*Engine Oil Filter (Gas)	FL-1A D9AZ-6731-A	Motorcraft Long Life Oil Filter	ES-E1ZE-6714-AA
Exhaust Control Valve	D7AZ-19A501-A	Rust Penetrant and Inhibitor	ESR-M99C56-A

*Diesel 6.9L FL-784 (E3TZ-6731-A)

Fluid and Lubricant Specifications

ALL VEHICLES

Item	Ford Part No.	Part Name	Ford Specification
Ford Conventional and Traction-Lok Axles, Except 3.00 Ratio Axles (1)	E0AZ-19580-A	Hypoid Gear Lubricant	ESP-M2C154-A
Ford 3.00 Ratio (1) Traction-Lok Axles	E0AZ-19580-A	Hypoid Gear Lubricant	ESP-M2C154-A
Front and Rear Dana Axles (2)	C6AZ-19580-E	Hypoid Gear Lubricant	ESW-M2C105-A
Front and Rear Wheel Bearings (Except Rear Wheel Bearings on Ranger and F-150), Brake and Clutch Pedal Shaft, 4x4 Spindle Needle Bearings	C1AZ-19590-E	Multi-Purpose Long Life Lubricant	ESA-M1C75-B
Front Axle Spindle Pins, Steering Column U-Joints, Clutch Linkage Pivots, Parking Brake Linkage Pivots and Clevises, Transmission Control Linkage Pivots	C1AZ-19590-B	Multi-Purpose Long Life Lubricant	ESA-M1C75-B
Front Drive Axle Free Running Hubs — 4x4	C1AZ-19590-B	Multi-Purpose Long Life Lubricant	ESA-M1C75-B

- (1) Add 4 ounces of EST-M2C118-A Friction Modifier (C8AZ-19B546-A) for complete fill of Ford Traction-Lok Axle.
- (2) Add EST-M2C118-A (Friction Modifier Part No. C8AZ-19B546-A) for complete re-fill of Dana Limited Slip axles. Add 4 ounces for F-250-350 rear. For Ranger, F-150 and F-250 4x4, add 2 ounces to front axles.

Fluid and Lubricant Specifications

ALL VEHICLES

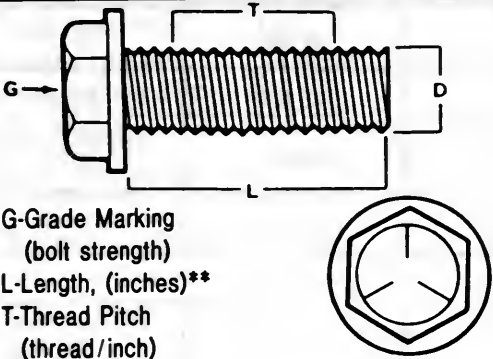
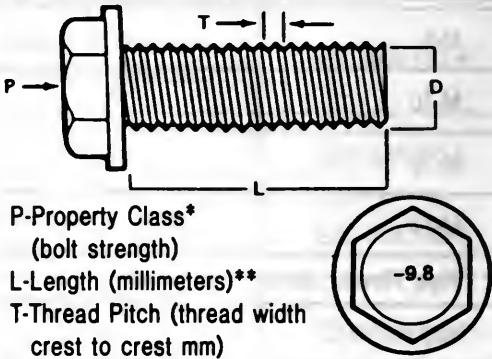
Item	Ford Part No.	Part Name	Ford Specification
Front Wheel Free Running Automatic Hublock Brake Bond	E1TZ-19590-A	Automatic Hublock Brake Bond Lubricant	ESL-M1C193-A
Lock Cylinders, Spare Tire Padlock	D8AZ-19587-A	Lock Lubricant	ESB-M2C20-A
Parking Brake Cable	D2AZ-19581-A	Speedometer Cable Lubricant	ESF-M1C160-A
Power Steering Reservoir	XT-1-QF	Motorcraft Type F Automatic Transmission Fluid	ESW-M2C33-F
Steering Linkage	D4AZ-19590-A	Steering Linkage Lubricant	ESA-M1C92-A Type II
Transfer Case — 4x4	XT-2-QDX	Motorcraft DEXRON® II Automatic Transmission Fluid	DEXRON® II
Transfer Case Front Output Slip Shaft — Ranger	C1AZ-19590-B	Multi-Purpose Lubricant	ESA-M1C75-B
Transmission — Automatic — C3 C6 AOD	XT-2-QDX	Motorcraft DEXRON® II Automatic Transmission Fluid	DEXRON® II
Transmission — Automatic — C5	XT-4-H	Motorcraft Automatic Transmission Fluid — Type H	ESP-M2C166-H
Transmission — Automatic — Shift Linkage	C1AZ-19590-B	Multi-Purpose Long Life Lubricant	ESA-M1C75-B
Windshield Washer Reservoir	C9AZ-19550-A or -B	Ultra-Clear Windshield Washer Solution	ESR-M17P5-A

Standard Torque Specifications

Metric Thread Sizes	N-m	lb-ft
M-6	8-12	6-9
M-8	20-30	14-21
M-10	40-55	28-40
M-12	70-95	50-71
M-14	110-155	80-114
Pipe Thread Sizes		
1/8	7-10	5-8
1/4	16-24	12-18
3/8	31-45	23-33
1/2	34-47	25-35

U.S. Thread Sizes	N-m	lb-ft
1/4-18	11-16	8-12
1/4-20	9-12	6-9
5/16-18	17-24	12-18
5/16-24	19-27	14-20
3/8-16	30-43	22-32
3/8-18	16-24	12-17
3/8-24	37-51	27-38
7/16-14	55-74	40-55
7/16-20	55-81	40-60
1/2-13	75-108	55-80
9/16-18	116-162	85-120

NOMENCLATURE FOR BOLTS

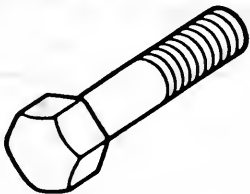
(English) Inch System Bolt, 1/2-13 x 1	Metric System Bolt M12-1.75 x 25
 <p>G-Grade Marking (bolt strength) L-Length, (inches)** T-Thread Pitch (thread/inch) D-Nominal Diameter (inches)</p>	 <p>P-Property Class* (bolt strength) L-Length (millimeters)** T-Thread Pitch (thread width crest to crest mm) D-Nominal Diameter (millimeters)</p>

*The property class is an Arabic numeral distinguishable from the slash SAE English grade system.

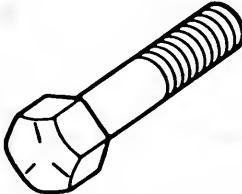
**The length of all bolts is measured from the underside of the head to the end.

BOLT STRENGTH IDENTIFICATION

(ENGLISH) INCH SYSTEM



Grade 1 or 2



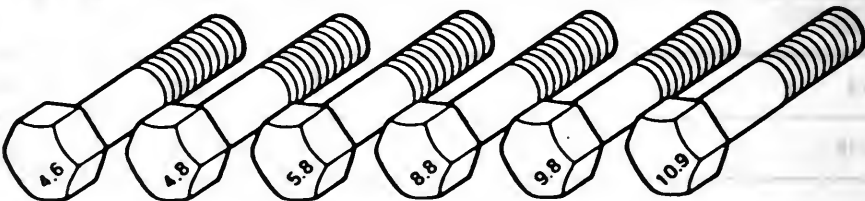
Grade 5



Grade 8





English (Inch) bolts — Identification marks correspond to bolt strength — increasing number of slashes represent increasing strength.

METRIC SYSTEM



Metric bolts — Identification class numbers correspond to bolt strength — increasing numbers represent increasing strength. Common metric fastener bolt strength property are 9.8 and 10.9 with the class identification embossed on the bolt head.

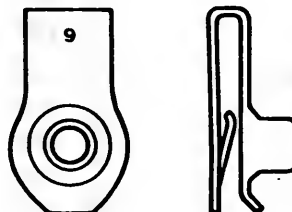
HEX NUT STRENGTH IDENTIFICATION

(ENGLISH) INCH SYSTEM		METRIC SYSTEM	
Grade	Identification	Class	Identification
Hex Nut Grade 5	 3 Dots	Hex Nut Property Class 9	 Arabic 9
Hex Nut Grade 8	 6 Dots	Hex Nut Property Class 10	 Arabic 10
Increasing dots represent increasing strength.		May also have blue finish or paint daub on hex flat. Increasing numbers represent increasing strength.	

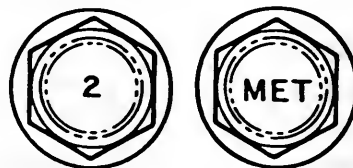
Other Types of Parts

Metric identification schemes vary by type of part, most often a variation of that used of bolts and nuts. Note that many types of English and metric fasteners carry no special identification if they are otherwise unique.

— Stamped "U" Nuts



— Tapping, thread forming and certain other case hardened screws



— Studs, Large studs may carry the property class number. Smaller studs use a geometric code on the end.



CLASS
10.9



CLASS
9.8



CLASS
8.8

English/Metric Conversions

	multiply	by	for equiv. no. of:
ACCELERATION	Foot/sec ²	0.3048	meter/sec ² (m/s ²)
	Inch/sec ²	0.0254	meter/sec ²
TORQUE	Pound-inch	0.11298	newton-meters (N·m)
	Pound-foot	1.3558	newton-meters
POWER	horsepower	0.746	kilowatts (kw)
PRESSURE or STRESS	inches of water	0.2488	kilopascals (kPa)
	pounds/sq. in.	6.895	kilopascals (kPa)
ENERGY or WORK	BTU	1055.	joules (J)
	foot-pound	1.3558	joules (J)
	kilowatt-hour	3600000.	joules (J=one W's)
		or 3.6 x 10 ⁶	
LIGHT	foot candle	10.76	lumens/meter ² (lm/m ²)
FUEL PERFORMANCE	miles/gal	0.4251	kilometers/liter (km/l)
	gal/mile	2.3527	liters/kilometer (l/km)
VELOCITY	miles/hour	1.6093	kilometers/hr. (km/h)
LENGTH	inch	25.4	millimeters (mm)
	foot	0.3048	meters (m)
	yard	0.9144	meters (m)
	mile	1.609	kilometers (km)
AREA	inch ²	645.2	millimeters ² (mm ²)
		6.45	centimeters ² (cm ²)
	foot ²	0.0929	meters ² (m ²)
	yard ²	0.8361	meters ²
VOLUME	inch ³	16387.	mm ³
	inch ³	16.387	cm ³
	quart	0.0164	liters (l)
	quart	0.9464	liters
	gallon	3.7854	liters
	yard ³	0.7646	meters ³ (m ³)
MASS	pound	0.4536	kilograms (kg)
	ton	907.18	kilograms (kg)
	ton	0.90718	tonne (t)
FORCE	kilogram	9.807	newtons (N)
	ounce	0.2780	newtons
	pound	4.448	newtons
TEMPERATURE	degree fahrenheit	0.556(°F -32)	degree Celsius (°C)

Decimal and Metric Equivalents

DECIMAL AND METRIC EQUIVALENTS

Fractions	Decimal In.	Metric mm.	Fractions	Decimal In.	Metric mm.
1/64	.015625	.397	33/64	.515625	13.097
1/32	.03125	.794	17/32	.53125	13.494
3/64	.046875	1.191	35/64	.546875	13.891
1/16	.0625	1.588	9/16	.5625	14.288
5/64	.078125	1.984	37/64	.578125	14.684
3/32	.09375	2.381	19/32	.59375	15.081
7/64	.109375	2.778	39/64	.609375	15.478
1/8	.125	3.175	5/8	.625	15.875
9/64	.140625	3.572	41/64	.640625	16.272
5/32	.15625	3.969	21/32	.65625	16.669
11/64	.171875	4.366	43/64	.671875	17.066
3/16	.1875	4.763	11/16	.6875	17.463
13/64	.203125	5.159	45/64	.703125	17.859
7/32	.21875	5.556	23/32	.71875	18.256
15/64	.234375	5.953	47/64	.734375	18.653
1/4	.250	6.35	3/4	.750	19.05
17/64	.265625	6.747	49/64	.765625	19.447
9/32	.28125	7.144	25/32	.78125	19.844
19/64	.296875	7.54	51/64	.796875	20.241
5/16	.3125	7.938	13/16	.8125	20.638
21/64	.328125	8.334	53/64	.828125	21.034
11/32	.34375	8.731	27/32	.84375	21.431
23/64	.359375	9.128	55/64	.859375	21.828
3/8	.375	9.525	7/8	.875	22.225
25/64	.390625	9.922	57/64	.890625	22.622
13/32	.40625	10.319	29/32	.90625	23.019
27/64	.421875	10.716	59/64	.921875	23.416
7/16	.4375	11.113	15/16	.9375	23.813
29/64	.453125	11.509	61/64	.953125	24.209
15/32	.46875	11.906	31/32	.96875	24.606
31/64	.484375	12.303	63/64	.984375	25.003
1/2	.500	12.7	1	1.00	25.4

DECIMAL AND METRIC EQUIVALENTS		FRACTIONS	
Decimal	Metric	Fraction	Decimal
1/2	0.5	1/2	0.5
1/4	0.25	1/4	0.25
3/4	0.75	3/4	0.75
1/8	0.125	1/8	0.125
3/8	0.375	3/8	0.375
5/8	0.625	5/8	0.625
7/8	0.875	7/8	0.875
1/16	0.0625	1/16	0.0625
1/32	0.03125	1/32	0.03125
3/32	0.09375	3/32	0.09375
1/64	0.015625	1/64	0.015625
3/64	0.046875	3/64	0.046875
5/64	0.078125	5/64	0.078125
7/64	0.109375	7/64	0.109375
9/64	0.140625	9/64	0.140625
11/64	0.171875	11/64	0.171875
13/64	0.203125	13/64	0.203125
15/64	0.234375	15/64	0.234375
17/64	0.265625	17/64	0.265625
19/64	0.296875	19/64	0.296875
21/64	0.328125	21/64	0.328125
23/64	0.359375	23/64	0.359375
25/64	0.390625	25/64	0.390625
27/64	0.421875	27/64	0.421875
29/64	0.453125	29/64	0.453125
31/64	0.484375	31/64	0.484375
33/64	0.515625	33/64	0.515625
35/64	0.546875	35/64	0.546875
37/64	0.578125	37/64	0.578125
39/64	0.609375	39/64	0.609375
41/64	0.640625	41/64	0.640625
43/64	0.671875	43/64	0.671875
45/64	0.703125	45/64	0.703125
47/64	0.734375	47/64	0.734375
49/64	0.765625	49/64	0.765625
51/64	0.796875	51/64	0.796875
53/64	0.828125	53/64	0.828125
55/64	0.859375	55/64	0.859375
57/64	0.890625	57/64	0.890625
59/64	0.921875	59/64	0.921875
61/64	0.953125	61/64	0.953125
63/64	0.984375	63/64	0.984375
64/64	1.0	64/64	1.0











Ford Parts and Service Division
Training and Publications Department